The Builder.

VOL. XXXII.—No. 1623.

The "Lungs" of London.

PURE air for the people of large towns is a requirement of vital importance. The grand chain of parks passing through, or dotted at intervals over, London, from Regent's Park in the north, Victoria Park in the east, Kensington Gardens, Hyde Park, Green Park, St. James's Park in the west, to Battersea Park and Southwark Park in the south, besides the "lesser stars" at Kennington, Camberwell, and other parts of the metropolis, enclosing an aggregate area of nearly 2,000 acres, has done much to maintain the healthfulness of this great metropolis. The extensive commons which may be found in the more open suburbs, as at Clapham, Tooting, Mitcham, Streatham, and Merton in the south, at Hackney and Hampstead in the north, at Wimbledon, Putney, and Barnes in the west, and whose integrity is so jealously guarded by the people, add another large surface to the breathing-places of the inhabitants of London, and yet the continual cry for pure air shows that even this accommodation is not enough for everybody to have a share in it. There are hundreds and thousands of children born and bred in the more densely-crowded parts of London, who never yet saw even the outer railings of the parks, or have so much as dreamt of the unenclosed areas of the commons around London. The Directory, it is true, will disclose the existence of many localities, rejoicing in names which would imply the existence of a small patch of grass and a few shrubs, of a little breathing-place where the poor children might see something besides pavements and bricks and mortar. Hatton Garden, Baldwin's Gardens, Hughes's Fields, Kingsland Green, White's Ground, Whetstone Park,—such names on paper are suggestive of open spaces which the foot of the builders has not yet desecrated, and where cabs and omnibuses are unknown; yet, as a matter of fact, they are "gardens" in name only, and their appearance is a terrible satire on the faithfulness of a name. While the parks and commons are as a sealed book to many hundreds of poor children, ay! and grown-up men and women too,—either because they are too far off, or because the wretched inmates of the alleys and lanes of the Seven Dials or Ratcliffe Highway have no time to see their children safely taken into them,—there are many spots in London which are literally closed to all comers, but which might well be thrown open to the public, under proper regulations. The large "squares" of the "west central" district of London are closed from morn to night, from year to year, and hardly a foot but those of the unfrequent gardeners ever breaks their solitude. The houses which surround them used once to be peopled by the rank and fashion of the country, but now they are all, or nearly all, turned into offices, occupied during a portion of the day, but tenantless at night. The reasons, therefore, which once prevailed for keeping the enclosures shut, or reserved solely for the use of the inhabitants of the squares, no longer exist. No one's privacy would be disturbed by allowing the public to have access to the grass and shelter of the trees, to which they are at present universally denied admittance.

It is true that the reclamation of land on the banks of the Thames, and the devotion of portions of the surface to gardens for the use of all comers, has resulted in a slight increase in the spaces available for the use of those who cannot otherwise catch a glimpse of, or take rest in, a garden of flowers. But still there is a cry for more pure air, and if the demand were supplied, the decrease in disease and mortality would be appreciable.

We believe that the Duke of Westminster lately threw open one or more of the enclosed "squares" in Belgravia to the public, giving free admission to all who chose to enter, under suitable regulations and restrictions. We would wish that the good example thus set could be followed by some of those who have control of the many squares in other parts of London. Lincoln's-inn-fields, Russell-square, Bedford-square, Bloomsbury-square, Euston-square, Soho-square, Red Lion-square, Golden-square; all these and more besides, enclosing from three to twelve acres of land each, are at present rigorously closed: even those for whose private recreation they are reserved do not avail themselves of them, for the simple reason that they can go to the seaside, to the country, abroad—wherever they like—when they desire change of air. But there are thousands, as we have said, to whom a run in these open spaces would be "a change of air," the like of which they have never been able to enjoy; to whom the opportunity of amusing themselves in the quiet, under the shade of the trees, on the green grass, would be an incalculable blessing. Why, then, should not this apparently easy experiment be here and there tried? We have recently recorded the purchase of Leicester-square by a wealthy citizen, who is, at his own cost, converting it from a "howling wilderness" into a place "of beauty" and a "joy for ever," in which we trust rich and poor alike will be able to enjoy themselves.

Immediately before the purchase of Leicester-square by Mr. Albert Grant, a society was being organised by Mr. Francis Fuller, with the immediate object of purchasing the square and converting it into an open garden, with an underground aquarium similar to that at Brighton on a portion of the ground; and with the ultimate purpose of similarly utilising other squares and open places in London, either as free gardens, or by devoting a portion of the space to similar useful and popular objects. The first intention was frustrated by the sudden announcement of Mr. Grant's gift; but it is proposed not to relinquish the idea of obtaining the right to throw open other squares as gardens for the benefit of the public. With this view the society, which has been working privately, intend to continue its efforts, and a pamphlet on the subject has been issued, copies of which may be obtained by application to Mr. C. E. Fryer, the secretary, 4, Old Palace-yard, W.

We sincerely hope that the organisation thus started, although anticipated in its immediate and first endeavours, will succeed in carrying out its views in regard to some other of the open spaces in and around London. By doing so it will confer an inestimable boon on thousands of the hard-working, hard-living, and hardly-cared-for population of London. The invigoration of the children of the poorest parents will go far towards improving the sanitary condition of the metropolis. Many stunted growths may become strong and vigorous by the timely opportunity of retiring from the filthy lanes and streets, which form their only playground at present, into the clear, pure, and healthy atmosphere of well-cared-for people's gardens.

Our own welfare depends very much on the welfare of others. Each is bound up with the whole; and in helping others it may be that we are helping ourselves.

THE HOLBORN VIADUCT NEW RAILWAY STATION.

THE new Holborn Viaduct Station of the London, Chatham, and Dover Railway Company was opened for traffic on Monday last, the opening having been deferred several times in consequence of the unavoidable delay which took place from time to time in the completion of the works, owing to several trade causes. Although the London, Chatham, and Dover Railway may be regarded as one of the most important of our metropolitan lines, it has not yet had a central terminus worthy of its position, or equal to the wide extent and ramifications of its traffic. But this has now been remedied, and what the Charing-cross Station of the South-Eastern Railway is to the West End, the Holborn Viaduct Station of the London, Chatham, and Dover Company will be to the City and the Eastern district.

In a former number of the *Builder* last year (October 11th) we published an extended description of the works on the extension line between Ludgate-hill and Holborn, together with a notice of the Viaduct Station and the hotel now in course of erection, and to these we may now add some further particulars as to the constructive features of a portion of the works, as well as the internal arrangements and decorations of the station apartments and the magnificent *restaurant* and refreshment saloon at the east end of the building, which have not hitherto been published. As is generally known, the area of the high-level station at the north-west side is carried over the old low-level line to Moorgate and Farringdon streets by iron girders thrown against the last-named line, and the works at this point are of a very formidable character in their engineering features. The western portion of the hotel, as well as that of the company's offices, will stand upon these iron girders, and it is only by descending to the low-level that it is possible adequately to estimate the magnitude of the work. The line to Moorgate-street and Farringdon-street exactly bisects diagonally the foundations of the hotel, the middle of which will therefore rest on immense colossal girders, borne by enormous stone piers. One of these piers, all of which are of Bramley stone, is calculated to bear a weight of 1,000 tons. The stonework rests on a foundation of blue Staffordshire brick, above which is a still thicker stratum of stock brick, covered again by concrete, all laid to a depth of more than 14 ft. below the level of the permanent way of the low-level line.

The station is approached from Holborn under a carriage-drive and colonnade, 18 ft. in width, having two entrances from the viaduct. The roof or ceiling of the colonnade is arched with white enamelled tiles. The interior of the booking-offices has been fitted up and decorated in an artistic manner. The ceiling is in covered panels, elaborately moulded, and in the centre there is an ornamental dome or lantern light, in addition to the windows at the north and south sides, thus spreading an unusually strong light over every portion of the apartment. Suspended from the top of the lantern light is a massive chandelier, containing one hundred burners. The furniture and fittings are all in solid oak, as well as the floor, the booking-offices themselves extending round the apartment in octagonal form. Spacious doors in carved oak, with projecting segment heads, lead from the booking-offices on the east side to the first-class ladies' and gentlemen's waiting-rooms, and to the telegraph-office respectively. The entrance to the waiting-rooms is at the south-east side, leading into the gentlemen's waiting-room, which is fitted up with oak furniture, upholstered in morocco. In the centre of the room there is a large oblong table, with three other oval tables in different portions of the apartment, whilst carried entirely round the room are massive seats nearly 2 ft. in depth, upholstered in morocco. In addition to these there are several chairs, uniform in design and finish, with the seats already named. A door on the north side leads from the gentlemen's into the ladies'

waiting-room, which is fitted up in the same luxurious style as that already named, with the addition of an ante-room as a lavatory. The second-class waiting-rooms are approached from the west side of the booking-offices, whilst the entrances to the cloak-room and to the luggage-office and Continental registration-office, are respectively from the east and west sides of the northern platform.

The decorations of the refreshment saloon and restaurant at the east end of the station, and which extends the full depth of the station buildings from the Holborn Viaduct entrance to the boundary of the north platform, are handsome. The ceiling is divided into twenty-one recessed panels, separated by borders painted and gilt. The walls on each side of the room are divided into seven compartments, carried up from about 3 ft. 6 in. from the floor to the frieze and cornice around the ceiling. The whole of these decorations are in art-tiles and majolica, with mirrors in each panel. The panels or compartments are divided by pilasters in majolica, faced with vases, and having ornamental capitals of the same material. The upper portions of the compartments above the mirrors are surmounted by ornamented arches in art-tiles of varied colours, made by hand, and painted under glaze or enamel, which renders the face and ornamentation of the objects represented entirely indestructible. Within the hoods or borders of the arches, which are of a warm and delicate colour, are figures representing different countries, including England, Australia, India, Italy, France, America, Spain, Russia, Germany, Belgium, Portugal, Canada, Greece, and Brazil. At each angle above the arches there are spandrels, also in art-tile work, the figures represented being in green and gray on a blue ground. This particular tile-work is also carried down on each side of the mirrors. The framework immediately around the mirrors is in majolica, outside which is a gilt bevelled strip. In the centre, on the west side of the saloon, is an ornamental chimney-piece in majolica, with double-fluted pilasters on each side, the central portion above containing panels, in which are recumbent figures in tile work. The whole of this portion of the work has been executed by Messrs. Simpson & Sons, under the superintendence of Mr. Lewis Isaacs, architect. The decorations of the lower portions of the walls of the saloon, as well as the furniture and fittings, are in walnut-wood and ebony. A moulded dado of these materials is carried round the apartment, whilst a large circular projecting counter, together with the tables and seats, are also uniform, the seats being covered in morocco. This portion of the work has been executed by Mr. John Drew, of Hatton-garden, and the whole has been carried out for Messrs. Spiers & Pond, who will shortly open the premises.

MARGATE DRAINAGE COMPETITION.

WE condense the heads of the borough surveyor's report on the plans submitted, referred to in our last. The author signing himself,—

Economy proposes to unite the drainage of the two valleys by a tunnel sewer. The outfall will terminate with iron pipes on the beach at Botany Bay. The tunnel outfall sewer will be 5 ft. 6 in. in height, for convenience of working, and 3 ft. wide. During a short portion of spring tides, the tunnel sewer will act as a reservoir. The surface drainage is proposed to be separated as much as possible from the sewage, and provided for by separate outlets. The total cost of the scheme, complete for the drainage of the whole borough, and including allowance for compensation, is estimated at 20,000*l.* This is the only scheme that dispenses with pumping, and avoids an annual outlay.

C. E. proposes to separate the rainfall from the sewage, and take the former direct into the harbour. The sewage he proposes to take by one main line of sewer to the pumping-station in the Dane, where it would be pumped through an 18-in. iron main to the summit at Northdown; and thence would flow through a 12-in. stoneware pipe, by gravitation, to Botany Bay, the same spot selected by the author of *Economy*. The estimated cost of the works is 31,800*l.*; and for land, compensation, engineering, and legal expenses, 2,200*l.*; making a total of 34,000*l.* In addition, the annual working expenses for pumping, &c., are calculated at 600*l.* per annum.

Intermittent Filtration proposes to take the whole of the sewage of the town to a pumping-station on the west side of the London, Chatham, and Dover railway, in the triangle of low ground between that railway and the South-Eastern railway, and then pumped through a 15-in. iron main to a height of 90 ft. above Ordnance datum, and conveyed by earthenware pipes to an area of twenty acres of land, situated in the Dane valley to the south-east of the town, and disposed of by the principle of intermittent downward filtration. Total cost, exclusive of the cost of land, 39,345*l.*; annual outlay, 620*l.*

Experientia proposes to take the sewage to a pumping-station in the same position as that selected by the author of *Intermittent Filtration*. An alternative pumping-station is shown in the Dane, within the borough boundary, and not far from the site selected by *C. E.* The author recommends the sewage to be disposed of by irrigation; and, should the proposal for a pumping-station in the Brooks be adopted, he shows a farm at Nash Court of 290 acres area, and an alternate site of 350 acres between Dent-de-lion and Woodchurch farm. Should the Dane be preferred for a pumping-station, he recommends about 275 acres of the West Northdown farm as a suitable site for an irrigation farm. The estimated cost of the sewers by adopting the Brooks pumping-station is 27,729*l.*, as compared with 24,350*l.* if the Dane pumping-station is preferred; in addition, 11,450*l.* must be added for pumping-stations and engines, applicable to either site. The total cost of the Nash Court or Dent-de-lion scheme (without purchasing land) would be about 50,000*l.*, and the Northdown scheme about 45,000*l.* (500 acres of land in each case). The annual expense of pumping is estimated at 1,526*l.*

Experience proposes to divide the town into three districts for drainage purposes, viz.,—the two hills as the two high levels, and the King-street district as the low level. The sewage will be pumped to a height of 96 ft. above Ordnance datum, which can be conveyed to 400 acres of irrigation land in the neighbourhood of Quex Park, belonging to Capt. Cotton. The author suggests an alternate scheme for an irrigation farm at Nash Court. The estimated cost of this scheme is 25,000*l.*, and an additional 1,000*l.* for a storm-water sewer, and an overflow-pipe from the Brooks to the Bay. The annual working expenses to lift the sewage to Capt. Cotton's land is stated to be 426*l.*, and to Nash Court farm 500*l.* per annum.

Westminster proposes to construct the main sewer to a pumping-station in the Brooks close to Tivoli, whence the sewage would be pumped to an irrigation farm between the St. John's Cemetery and Nash Court. The system of separating the rain-water from the sewage is adopted, and of using the supernatent water only for irrigation purposes. One hundred and forty acres of land will be required for irrigation. Total cost, 22,420*l.*; annual outlay, 1,110*l.*

Carefully Considered proposes to convey the sewage by gravitation to a pumping-station immediately at the back of Marine-terrace, and pumped from there to an irrigation farm of forty-five acres in the neighbourhood of Hengrove. The rainwater is conveyed to the harbour by separate sewers. Total estimated cost, 16,300*l.*; annual expense for pumping, &c., 507*l.*

Ex Luto Lucellum proposes to sewer the whole of the town by means of earthenware glazed pipes, with the exception of a short length of oval brick sewer, and convey the sewage to the pumping-well immediately at the back of the Kent Hotel, where the system of precipitation, known as the "A B C" process will be adopted, and the supernatent water discharged direct from the works into the sea. The estimated cost of the whole of the sewering within the borough, including outfall to sea, is 16,000*l.*; engines, tanks, and other buildings, 8,070*l.* Estimated cost of working the process one week in the production of sixty-five tons of manure, 12*l.* 17*s.* 6*d.* It is calculated that an average of fifty-five tons and a half per week throughout the year could be produced at a cost of 2*l.* 1*s.* 6*d.* per ton, and the sale for the native guano is estimated to realise 3*l.* 10*s.* per ton; leaving a profit of 1*l.* 8*s.* 6*d.* on every ton of guano produced.

Some discussion has taken place as to the propriety of exhibiting the designs to the public.

Newsvendors' Benevolent and Provident Institution.—Mr. A. J. B. Beresford Hope, M.P., will preside at the festival in behalf of the funds of this valuable Institution on the 29th of April next, at the Criterion, Piccadilly. We hope to find the dinner well attended.

CAN ART BE TAUGHT?

SIR,—Writers upon art, like theologians, are too apt to consider all expressions of opinion, but their own, *cant*. It is but another phase of "Orthodoxy is my doxy, heterodoxy is other people's doxy."

Your correspondent of last week tells us to submit, obediently, to the *spirit of the age*. The spirit of the age is certainly a very grand expression, but we always took the *spirit of the age* to be that spirit which animates and dominates the age. If that be so, whatever that spirit wills will be manifest. If fine art, fine art will flourish.

If, however, "W." means us to understand that if we would follow the same rigorously scientific method in artistic as in physical inquiries, fine art would soon be established on a sound basis, and freed from the theoretical "fluff" by which it is now choked, I, for one, would perfectly agree with him. But, strange to say, the spirit of the age will not allow that the principles of art admit of determinate scientific expression, even though Sir Joshua Reynolds, in his masterly discourses, and from whom one would have scarcely been prepared to expect it, stoutly maintains that they *do* admit of such expression.

It is because the scientific method is not brought to bear upon art questions, that people cannot see that every country cannot have an original, which shall at the same time be a *right*, fine art of its own. There is but one true and catholic art: all departures from this are variations from the central type, exhibiting individual characteristics, and their concomitant imperfections.

W. C. T.

SIR,—I entirely agree with your correspondent, Mr. Cave Thomas, in his views relative to the question, "Can Art be taught?"

The perusal of his communication forcibly reminded me of a remark I remember being made by the late C. R. Leslie, R.A., viz., "That those who require teaching are not worth it; and those who *are* worth it do not require it."

Although apparently paradoxical, it occurred to me at the time as being very much in the spirit of Sir Joshua Reynolds's observation, that if art is to be taught at all, the best teacher a man can have is himself, for he will then at least have the advantage of having a master for whom he is sure to entertain respect.

Etty, Landseer, and Leslie more than half a century ago studied at the Royal Academy together under the supervision of Fuseli, who was shrewd enough to discover that teaching in their case would have been an impertinence; for Leslie says,—"Under Fuseli's *wise neglect* we reached the goal of our ambition without being warped by the trammels of conventional rules."

To my thinking, the only advantages of schools of art consists in offering opportunities for free and unrestrained study, which is sure to create healthy emulation inspired by honest rivalry. After all, industry will soon reveal the material of which the student is made; for, as Etty remarked (in a letter I received from him in 1849—the year in which he died),—"Industry will do much, continued long and regularly; for genius and talents are like the rough ore,—they must receive the polish of labour and art ere they can become truly ornamental and useful."

J. EATON WALKER, M.R.S.A.,
Painter to his late Majesty Napoleon III.

IN answer to the question, "Can art be taught?" I most decidedly affirm that it can. Are not works of art, from the noblest productions of men of genius, to those of more humble art-workers, the results of much patience and industrious application? Are they not in many cases the results of life-long toil? Surely the calling forth of such endurance from their authors suggests the idea that there was something to be learnt. And what was to be learnt but art, either by self-teaching or otherwise? By continued application, those artists must have acquired newer, fuller, and truer ideas of pure art than they originally possessed. In this sense even the great masters must have taught themselves.

But, your correspondent would say, all this art was previously within them; born in them, I suppose, since they could "never have been taught art." I have an idea that a genius is a man who possesses any intellectual faculty in a measure far greater than the average amount of that faculty vouchsafed to his fellows. But the meaning of art being in a man, I cannot

comprehend. My belief is that the power of appreciating the beautiful in nature is as much, and, in the same way, a distinct faculty of the human mind as the faculty of thought or imagination. And just as the faculty of thought or imagination may exist in different human constitutions to any degree, from genius to the least appreciable, so also may the faculty of artistic perception. And it is by the intelligent exercise of this faculty on all that they see around them that mankind teach themselves art. It is from the world without them, men of genius grasp their first ideas: it is to the world without them they appeal for aid to develope those ideas ere embodying them in works of art. It is evident that no man could form any conception of art if material objects were never presented to his view. Thus, although art may be a means through which we teach ourselves, it is in itself no teacher, but on the other hand something acquired.

The arguments of your correspondent against the continuance of our art schools, contained in his last paragraph, may be summarised as follows:—The human intellect, physique, and senses, not having developed sufficiently near to the standard of perfection to enable mankind to form any correct notions of art, it is advisable that artistic studies should be discontinued until such time as mankind shall have so far developed. Why, sir, by so doing we should discountenance one of our greatest incentives towards perfection. Can it be true that our constitutional development could be accelerated by disregarding all that is to be learnt from art? The clearer our conceptions of all that is beautiful, the more apt are we to discover our own imperfections, and the more we love art the more we shall seek to improve ourselves.

Art and the human constitution must develope together, acting and reacting on each other. Refined humanity refines art, and *vice versâ*.

Thus the good to be derived, both in a social and artistic sense, by encouraging a love of art throughout the masses of our population is evident. And such I believe to be the primary object of our art schools. Their "perfect mechanism" is well adapted to enable all those upon whom it operates to develope their art faculties as much as possible. Thus, while our "art schools" supply a national want, they afford every facility to all geniuses who may seek their aid. And long may they be continued in the good cause which gave them birth, even until the art they teach shall exercise its humanising influence in the humblest homes of England. To which all true lovers of art must say, Amen!

And if this letter should catch the eye of your correspondent, I trust it may lead him to modify his opinions on this matter. For if the cause of art were subject to the conditions set forth in his article, I fear the most sanguine temperaments of the nineteenth century could only speculate upon the dawn of "fine art" with the approach of the millennium.

Science and Art Student.

NEW BUILDINGS AT CLEMENT'S INN.

A new block of buildings is in course of erection by the managers and trustees of Clement's Inn, intended to be occupied as chambers in connexion with the Inn. The site of the buildings is a portion of that which, until recently, formed a part of the old burial-ground and the almshouses. The structure, which is immediately to the west of the site of the new law courts, extends from the old hall of the Inn to the Strand, its main frontage looking eastward in the direction of Temple-bar and Fleet-street, and a commanding view of the building being obtained from that part of the south side of the Strand, between Temple-bar and St. Clement's Church. The length of the frontage extending south, from the hall to the Strand, is 130 ft. The building contains a basement, in which will be the porter's apartments, with ground-floor, and three stories above. The style of architecture is the Gothic, and the materials Luton brick, with Ham-hill stone dressings, and red and black bricks for ornamental circular hoods over the window heads. The central portion of the elevation, which projects beyond the face of the building on either side, is surmounted by a cornice, above which rises a turret, the entire height of this part of the structure being 80 ft., and in the interior of which a stone staircase is carried up to the top of the building. The height of the building on each side of the central projection is 54 ft. The windows are not uniformly in keeping with the general architectural character of the building. The main entrance is at the ground-floor part of the central portion of the elevation, and consists of a recessed Gothic archway in Ham-hill stone, having on each side double columns with carved capitals, and there are also spandrels above, on each side of the archway. Mr. Raphael Brandon is the architect, and Messrs. Dove Brothers are the contractors. The area in front of the new building, to the extent of about 30 ft. in width, will lead to the Inn, and the new chambers, now in course of erection, the land westward, and including the former entrance to the Inn, having been purchased for the new law courts, for the building of which preparations are now being made by the contractors, Messrs. Bull, by the erection of offices and buildings for the machinery which will be required in carrying out the contract. It may be added that in addition to the new buildings above described, the old hall of the Inn has been externally refaced, and the ceiling and walls of the dining-hall renovated and decorated.

PROPOSED NEW HIDE AND LEATHER MARKET FOR THE CITY.

A proposal has been broached for the removal of the Hide and Leather Market from Leadenhall, and the erection of a new market on some other side. The subject was discussed at the meeting of the Corporation last week, when preliminary steps were taken for carrying out the object. Mr. McGeorge moved a resolution to the effect that, considering the inconvenience and nuisance arising from the present position of the Hide and Leather Market in Leadenhall, the great value of the site, and the importance of utilising it, it be referred to the City Lands Committee to consider whether there is any vacant or other land near the New Meat and Poultry Market available as a site for the erection of a new Hide and Leather Market in that locality, and what steps it would be desirable to take to carry out the object in view. He would not specify any site upon which to re-construct the Hide Market. The motion was carried, the words "near the New Meat and Poultry Market" being altered to "any land in or out of the City."

THE COMMISSIONERS OF SEWERS AND THE CITY NEW RAILWAY PROJECTS.

The Commissioners of Sewers have determined to oppose some of the new Railway Bills affecting the City, and amongst the projects which they intend to resist is the Bill of the North London Company, which seeks for powers to absorb and stop up that portion of Sun-street over which the London and North-Western and North London lines are at present carried. The North London Company are desirous of obtaining Parliamentary sanction for enclosing and converting the area under the railway into warehouse and merchandise space, but the inhabitants of the district have warmly protested against the proposal, on the ground that it would interfere with the construction of a footway between Liverpool-street and Sun-street, now in course of erection, and which the Great Eastern Company, when they obtained their Metropolitan Extension Act, undertook to carry out. It is said that, notwithstanding this intended opposition of the City authorities, the company are determined to press their Bill before Parliament, and will endeavour to show that the communication between the two streets may be maintained by a deviation of the route.

The Bill for a new railway between the South Eastern Railway at Cannon-street and the Fenchurch-street station of the Great Eastern line is also to be opposed. It may be stated that the promoters of this scheme propose to effect a junction between the two stations in question by a line of railway carried on arches intersecting the several thoroughfares between Cannon-street and Fenchurch-street.

As regards the Metropolitan Inner Circle completion and Eastern Extension scheme the Commissioners are desirous of giving it their cordial support, inasmuch as it embodies improvements of great metropolitan value; but they, nevertheless, decided formally to petition against it, in order only, however, to obtain a *locus standi* for the purpose of protecting the interests of the Commission in regard to the pavements and sewers. But the discussion on the subject at the meeting of the Commissioners last week showed that certain members of that body are of opinion that the Bill ought to be opposed on its merits, and one gentleman (Mr. Murrell) urged against the Bill that the Commissioners were asked to hand over some of their streets to a public company for the benefit of officials; and he asked what was to become of the traffic during the construction of the line? Its suspension and diversion would materially affect the trade of the City. He further argued that the company having excavated Fenchurch and Cannon streets, the houses of which thoroughfares they would put into a dangerous state, would probably get into financial difficulties, and the corporation would in that case be asked to find the money to complete the scheme, the cost of which could not be estimated. He moved an amendment to the effect that the Bill in its present shape be opposed.

Sir John Bennett said they would do damage to a great and important scheme by acceding to the amendment.

Mr. Knight, in opposing the amendment, denied that the Commissioners were going to hand over the streets to the railway company for an indefinite time. The operations of the company would not even come to the surface except in those places where bricks and mortar would have to be taken down to the works. According to the Bill the streets would not be wholly closed; and with regard to the cessation of the works, in consequence of a want of funds, a committee of the House of Commons would see to that point. The amendment was ultimately negatived.

YEOVIL CORPORATION WATERWORKS.

Mr. Hawksley attended the council meeting on Monday last to describe the present condition of these works. He reported that the pond at the upper source was in excellent order. Only a few pipes had burst since the works were handed over to the corporation. The pitching round the hydrants had not been satisfactorily done, two-thirds of it requiring repair or actual relaying. On account of defects in joints, the council had been put to an expense of 15*l.* for repairs. He had had the reservoir emptied, and examined it in every part. He found it in excellent condition. The floor and walls were good; there was no sign of any settlement, and the mortar had set very hard indeed. The plants had proved a failure. The whole of the system was working satisfactorily, and the revenue (over 900*l.*) already obtained from the works was larger than might have been expected in so short a time. Great credit was due to the manager in this matter. The entire cost (exclusive of land, law, compensation, &c.) was 13,123*l.*,—a sum very slightly in excess of the Parliamentary estimate. It would be satisfactory to the council to learn that the authorities at Liverpool and Leeds were both seeking powers to enforce the same regulations as those in force here.

The town clerk asked Mr. Hawksley if it would be disagreeable to him to receive the balance of the account due to his firm? and, on his assuring Mr. Batten that it would not, Mr. Alderman Whitby proposed and it was resolved that a cheque be drawn for the balance, and that a vote of thanks be presented to Messrs. Hawksley for their efficient service.

NEW VAGRANT WARDS FOR LOUGHBOROUGH.

The new vagrant wards at the union workhouse are now completed, and have been inspected by Mr. Corbet, the Poor-Law inspector, who has expressed his satisfaction with their construction and arrangement. They are situated adjoining the entrance from Regent-street, and consist of six male and two female sleeping-cells and six labour-cells, with a separate drying and disinfecting room, it being the intention for the present to utilise to some degree the old vagrant wards.

Separate entrances are provided for males and females, with waiting lobbies and bath-room, the arrangements for classification being complete. The cells are fitted with bed-boards, and are thoroughly ventilated: bells from each communicate with the attendant's room. The labour cells are provided with an arrangement which will ensure the granite stones being broken the proper gauge, the vagrant being compelled to

break and deliver through the external wall 6 cwt. of granite previously to his discharge.

The whole building is warmed by Messenger's hot-water apparatus, which also supplies the bath.

Many of the vagrants who have witnessed their construction are disgusted, and have expressed their determination to cease paying Loughborough their periodical visits.

The works have been carried out by Mr. Wm. Rowland, builder, at the contract sum of 555*l*.

Mr. George Hodson, of Loughborough, was the architect.

SEWAGE FARMING.

ONE of the objections at the present day to sewage-farms, it is well known, is, that they are injurious to health, and that the rate of mortality is increased in that particular district. This objection is a serious drawback, and greatly assists landowners in keeping up the price of their land. Happily, however, experience teaches us that this objection has no real foundation to rest upon, and we have occasionally adduced proofs to the contrary, and especially in the case of Croydon. In confirmation of that opinion, as regards the present state of the mortality in the parish of Croydon, a correspondent of the *Sussex Express*, Mr. W. H. Wright, thus writes:—

"I have in my hand an extract from the Mortality Tables for the parish of Croydon, for 1873, and where a sewage farm has existed for many years. The comparative mortality shows the parish of Croydon to be healthier than any town district. For the last year, however, Croydon has earned the great distinction of being on the average absolutely healthier, not merely than the town districts of all England, but the country districts included. Croydon was one of the first towns in the kingdom to adopt the principle of sewage irrigation, and as the result of this, and the proper ventilation of the sewers, the effects of epidemic diseases are found to be much less severe than formerly, and the death-rate has materially diminished. If we take the profit and loss account of any other system of disposing of our sewage, we find the latter in excess; while, on the other hand, if we purchase poor land, within a reasonable distance of our town, at a fair and equitable valuation, it may be so improved that we are at no loss, and must ultimately be gainers by the transaction."

DR. NEILL ARNOTT.

THIS well-known gentleman died a few days ago at his residence in Cumberland-terrace, Regent's-park, in the eighty-sixth year of his age. Of his early life little is known, except that he was a native of a district near Montrose, and that he was born in 1788. He was brought up while a boy at Aberdeen, where he had Byron as his schoolmate and playmate. He afterwards entered himself at the University of Aberdeen, where he took the usual medical degrees; devoted himself to natural philosophy; came up to London, and became pupil to Sir Everard Home, then one of the leading physicians of the time; and then went to India with an appointment in the East India Company's navy as a surgeon. Many of the most striking facts and incidents in geology, astronomy, natural history, navigation, &c., which were presented to him during his Eastern voyages were profitably used by him in after time as illustrations to the work which aided in making science popular, and Dr. Arnott famous. It is sixty-three years since he retired from the Indian service and settled down as a physician in London. In 1823–24, he was invited by Dr. Armstrong and others of his professional brethren to deliver in London a course of lectures on natural philosophy regarded in its applicability to medicine. In the following year he was requested to repeat these lectures, but, not finding sufficient time to do so, he published in 1827 the substance of his course under the title of "Elements of Physics," a work which has passed through very many editions here, and has been translated into numerous European languages. In 1838, seeing that a large part of the battle against disease and the maintenance of the public health depended on the right management of the great physical influences, among which the chief were the regulation of the temperature and the purification of the air, he attempted to awaken public attention to the subject and to the prevalent misconception regarding it. This he did by his publication of an "Essay on Warming and Ventilation," in which he described certain means of avoiding some common and not at all necessary evils.

For the inventions and novel applications of Dr. Arnott to which we have referred, and which he gave to the public without any patent appropriations, and especially for his smokeless fire-stove, the Council of the Royal Society, some years later, in 1854, awarded to him the Rumford medal; and a gold medal at the Paris Exhibition in 1855, with a cross of the Legion of Honour, which were conferred upon him, showed in what light the jurors of that Exhibition regarded these and other novel appliances for the prevention of disease and for the preservation of public health which in England were already associated with his name as a sanitary pioneer.

Dr. Arnott was placed by Lord Melbourne's Government among the members of the Senate of the University of London at its first creation. He was elected in 1838 a fellow of the Royal Society, having already received a Court appointment—that of one of the Physicians Extraordinary to the new Queen. Since that time Dr. Arnott has been called upon to act as one of the medical advisers to the Board of Health, and has written reports, and been otherwise employed in sanitary matters.

COLOURED DECORATION.

ARCHITECTURAL ASSOCIATION.

AN ordinary general meeting of the members was held on Friday evening, the 6th inst., Mr. E. J. Tarver (president), in the chair, when the following gentlemen were elected members:—Messrs. A. Young, H. Goodhew, W. J. B. Lewis, and W. A. Rolfe.

Mr. Paice (secretary) then read the following letter, which he had received from Mr. T. A. Wright, secretary to the Executive for the International Exhibition of 1874:—

The committee for architecture has recommended that a class of architectural designs shall be collected for each year's Exhibition, and that school, commercial, church, municipal, and domestic buildings shall be taken in consecutive order as distinct features in the class of architectural designs. It having been decided to commence this year with the representation of scholastic buildings, including colleges, schools, museums, libraries, and gymnasia, I am to request that you will move the Council of the Architectural Association to afford the committee the benefit of their valuable assistance by promoting the exhibition of designs of the nature specified. I am to observe that the committee recommend that a small explanatory plan should be inserted in the corner of each drawing. In the event of any members of your Society wishing to become contributors to this section of the Exhibition, I am to request that they will have the kindness to fill up one of the forms of application, and to return it to this office immediately; also to cause their works to be delivered at the Exhibition Building, east goods entrance, by the 16th of March next.*

The President observed that he thought the members of the Association would have no difficulty in sending a goodly number of school plans and drawings, as he believed that most of the successful competitors in the recent school board competitions were members of the Association.

A vote of thanks was then passed to Mr. Withers for his kindness in allowing the members to visit his new church in Graham-street, Coleshill-street, Pimlico, last Saturday week.

Mr. J. Douglass Mathews announced with regret the death of Mr. Edmund Marshall, the Association's collector; and paid a high tribute to the faithful manner in which he had always performed his duties, moving a vote of condolence to the widow, which was, of course, carried.

The President stated that Mr. R. C. Page, a member of the Association, had this year carried off the Pugin Travelling Studentship at the Institute examination.

Mr. J. D. Crace then read a paper on "Coloured Decoration," to which we will return.

Mr. R. Phené Spiers said that there was no doubt that the wonderfully harmonious results obtained in the greater part of Italian decorations were due to the fact that they were actually studied on the walls. The great difficulty they (the meeting) had to contend with was, that they were bound to design decorations in offices upon paper before being executed. They had no opportunities of practising and observing the actual effect of their work in execution. He thought that one or two of the rooms at the South Kensington Museum were very satisfactory examples of coloured decoration, particularly the room in which the porcelain was kept. The successful results, in these instances, were due to the fact that the students of the School of Art in connexion with the museum repeatedly made experiments; and whenever the effect of their work was unsatisfactory, it was effaced, and a new pattern commenced. In the absence of the advantages possessed by the Italians, the only alternative left was to make careful notes of the best examples.

Mr. L. F. Day said that, with regard to colours used in decorations, he had never seen any decoration in green or red which was at all respectable in appearance; but perhaps the satisfaction given by this combination of colours was due to the very large use of gold; for gold was at all times a very great harmoniser; and the use of gold was sure to harmonise, even though the designer had done his best to mar his design by putting in a quantity of magenta and emerald green.

The President remarked that the name of Crace, as regarded coloured decoration, had acquired a world-wide reputation; and, after hearing his remarks that evening, one could easily understand how that reputation had been earned. Speaking personally, he had found that although the study of decoration was a very charming one, its practice was not always desirable. It seemed to be a question in his mind how far the study of Italian examples was applicable to England. Of course, the clearness of the climate in Italy rendered the whole tone of decoration different altogether from that of this country, where a more forcible treatment was required.

THE PROPOSED SITE FOR THE LIVERPOOL LAW COURTS.

IT is to be hoped that the suspended negotiations between the Government and the local Finance Committee as to the central site in Victoria-street, will now be renewed and brought to a successful issue. The town council have virtually sent the question back to their finance committee, by confirming their general proceedings, with this exception. All the difference between Mr. Ayrton and the committee, it is said, is a matter of 2,000*l*. or so, while there is a general desire to have the new courts in the proposed central position. Some of the town councillors seem to hold the committee as not blameless in withholding their consent to the terms of the Government. The committee had offered 2,100 yards of ground to the Government for 34,675*l*. Mr. Alderman Hall declared that all the difference would have not been more than 275*l*. to the corporation; and Mr. Picton pointed out that the erection of a large and handsome public building on the spot proposed would greatly enhance the value of other corporate land in that locality. Another and less central and convenient site was in view on the part of the late Government.

THE STATE OF ST. JAMES'S PARK.

SIR,—I feel sure you will take the same public interest in the locality I am about to call your attention to, as you have taken in other parts of London. I wish to call your attention to the disgraceful, slovenly, and indecent state of the enclosure of St. James's Park. The larger portion of the walks are worn down to the rough foundations; projecting boulders have the predominance, especially on the north side, next to the Mall, from just above the lodge opposite the Horse Guards round to the Palace; the grass borders that were formerly by the outside rails in Birdcage Walk, are all trodden down to the bare ground; the protecting rails are almost all gone; the borders on the north side are in a bad state; some of the protecting rails are also gone; a great many of the paddock-rails are gone, and paths are made on the grass; the border and paddock rails that are standing have lost a great many of their coupling-nuts and screws; each one is allowed to go its own way, which adds to the general slovenliness. The outside rails at the east end, facing the Horse Guards, are not much better; they seem to want a rise. The flower-borders are never used for that purpose, as a flower is scarcely ever to be seen there. The paddocks that ought to be protected, especially in wet weather, from being trampled down, the roughs from all the surrounding districts are allowed to do as they like in, and play all sorts of games, including gambling, Sunday and week-day. The police do not seem to interfere, or trouble themselves about anything less than a fight or a robbery; the protection of the Park and its decorum seem to be beneath their notice. The seats are of the meanest description, especially on the north side of the water, from the bridge to the Palace, and in summer there is not a quarter enough of them to accommodate the hard-working females that frequent the Park on a Sunday with their infants and families; the few that are there are allowed to be

* A similar letter was addressed to the Royal Institute of British Architects, and after the above was in type we received a copy of it from Mr. Eastlake, with a request that it might be inserted as the readiest means of furthering the object to which it refers.

run over by roughs, and are never fit for decent persons to sit upon. The "convenience" at Story's Gate is in a very indecent position: a female can never enter the enclosure-gate without an unpleasant meeting. Some rough gravel and sand have lately been laid on the walks at the end of the water near the palace. I think it has not been even rough-screened. Within a dozen yards I picked up nine stones (as many as I cared about carrying), which weighed from 3 oz. to 7 oz. each. Other parts of the park were patched with a very dark granite in about half-inch squares; some longer, some smaller. These are disgraceful materials to cover the walks of a royal and public park. Hyde Park has its walks covered with a beautiful soft little shell, and the tops of its rails gilded. I should like to ask, sir, why St. James's Park is not attended to like other parks?

It may not be out of place to mention I have just served three years as a member of the Westminster District Board of Works; served on the Works and Sanitary Committees. My attendance last year was seventy-one times—the highest number. My motion was carried for the improved lighting of the Broad Sanctuary. I am now on the vestry: you will, therefore, not be surprised at my feeling the interest I do in what ought to be our beautiful little park. I feel you are the proper person to take it in hand. E. GRAHAM.

ACTION AGAINST THE PEABODY TRUSTEES.

THE Master of the Rolls has given judgment in the suit of "Ball *v.* The Earl of Derby," which occupied the attention of the court for the greater part of two days. The bill was filed by the lessee of a public-house called the Bull in the Pound, situated in Broadwall, Blackfriars, against the Earl of Derby and the other trustees of the Peabody Donation Fund, for an injunction to restrain them from erecting a block of buildings so as to darken and obstruct the public-house windows, and thereby injuriously affect his trade. A number of witnesses were called, and among them were several professional valuers, who gave various estimates as to the damage which the plaintiff is likely to sustain by reason of the Peabody-buildings. Some of those called for the plaintiff put it as high as 400*l.*; while others called for the defence denied that there would be any "obscuration" at all, and contended that the plaintiff would, in fact, be a gainer by the erections complained of. His Honour said it was a question of comfort, and that the proved injury sustained by the plaintiff was barely sufficient to warrant an injunction. This was a proper case for the Court to exercise its power of substituting damages for an injunction. The amount of damages, then, being the only question for his decision, he was inclined to take a liberal view, and on the whole he thought 200*l.* was a reasonable compensation. That, of course, would carry costs.

PARISH MORTUARIES.

DR. LANKESTER, the coroner for Middlesex, made some pointed remarks on parish mortuaries, at an inquest held in Clerkenwell, on Monday last. The foreman and the jury having complained that the one which Clerkenwell until recently possessed, and which had proved of inestimable value to the inhabitants, had been pulled down by the agent of the Marquis of Northampton, the coroner observed that no one knew the value of a public mortuary better than himself, and he urged the erection of one in every parish throughout his district. In the first place, a post-mortem examination could not properly be made in a private room. No thorough microscopical examination could be made of the organs, besides which gases would escape from the body, and cause all sorts of illnesses to the inmates. It was imperative in the interests of the public that a mortuary should be erected in every parish, built in such a style that no offence could be given to, or entertained by, the relatives of the deceased removed to it, such mortuary to be supplied with slabs, a quantity of water, coffins with glass lids, in which to put the bodies of those who had died from an infectious disease, weights and scales, and such like. We have often urged the same thing.

The Artists' General Benevolent Institution.—Sir Henry James is to take the chair at the annual dinner of this society, on the 9th of May.

LECTURES ON ARCHITECTURE.

BY EDWARD M. BARRY, R.A.

PROFESSOR OF ARCHITECTURE, AT THE ROYAL ACADEMY, LONDON.*

MY first official lecture from this place cannot be more fittingly commenced than by a sincere expression of admiration and gratitude for the excellent discourses to which you have been accustomed, for some years, from my immediate predecessor, Sir Gilbert Scott. Those who have had the privilege of attending them, or who have read them afterwards, will need no words of mine to induce them to do justice to their instructive and interesting character. An eager and enthusiastic admirer of Gothic art, he has not hesitated to press upon students of architecture the advantage, nay, the absolute necessity, of wide and catholic study, and, to quote his own words, from one of his most recent lectures, he has not been "stinted or cold-hearted in his eulogy of the architecture of ancient Greece and Rome."

In succeeding to his office, without, I feel, filling his place, I cannot do better than remind you of his teaching, while expressing a hope, in which I know you will all share, that with renewed health and strength he may long continue to illustrate the principles which he inculcated by his practice in the profession which he adorns and so worthily leads.

Sir Gilbert Scott was preceded by Mr. Smirke, to whom, for his long and devoted service, this Academy owes a debt of gratitude in various ways. I would willingly say more of both these eminent men, but as they are happily still with us, I must content myself with a general allusion to the ability and learning which they have placed at your disposal, thereby establishing claims upon your gratitude, and making my task, as their successor, only too difficult.

From this brief reference to our two living professors, and also my recollections of their predecessor, the late Professor Cockerell, you may well imagine the feelings which press upon me this evening, and which nothing but a sense of duty could overcome. I have to take up the thread of their discourse to speak to you of the noble art of architecture, to consider its qualities, to trace its history, and to contribute, as far as may be, to its glory. Well might any one, even under less disadvantageous circumstances, shrink from so heavy a responsibility, and fear to twine his inferior threads with the golden strands left to him from the past. Deeply conscious of my own deficiences, I must, I am aware, but too often need forbearance and indulgence in attempting to fulfil the task which lies before me. I cannot but feel that there are many who are far more competent to assume the position of an architectural teacher, and that the engrossing occupations of active professional life from early years are not the best preparation for a work, needing the learning and studious research which are best acquired in the quiet meditation of the closet.

Nothing, therefore, would have led me to address you from this place but a sense of the duty and obedience which each member of the Royal Academy is bound to manifest, when he is called on by the authorities to place his services at their disposal, for the furtherance of art.

It is in this spirit, gentlemen, that I shall address you, and I know I shall not ask in vain for your co-operation and attention. There may be present those who have the right to teach me rather than to learn from my teaching. To them I must appeal for their forbearance, and must ask them to consider that these lectures are mainly addressed to students, not of architecture only, and that it may therefore be necessary to dwell upon aspects or details of art, which to the more experienced are but the repetitions of a twice-told tale. It is not the first object of a professor in this place to impart the technical knowledge which can be best learned elsewhere; and I shall rejoice if, in dwelling on general principles, I am able in any way to excite an interest in architecture among the students of painting and sculpture, and so aid in paving the way for that union of the arts, the absence of which, in these days, we so often have occasion to deplore. If it were not for the thought that words uttered here may, perchance, fire the imagination of the younger generation, and inspire them with the resolution to emulate the deeds of the architectural giants of our glorious artistic history, I should feel no justification in occupying this chair, and to students alone do I presume to offer counsel and advice.

No one who is at all deeply imbued with a feeling of devotion to his art, and who has had to carry out his views, as best he could, in the rough friction of every-day life, with its many hindrances and discouragements, will undervalue the difficulties which beset those who would speak authoritatively about architecture.

An artist in such a case would know but too well how far his own works have fallen short of his cherished ideal to be inclined to adopt that spirit of fierce denunciation which so often passes now-a-days for a knowledge of art. He would, naturally, be the severest critic of his own achievements, and would know that to his criticisms a *tu quoque* retort might often be expected. Nevertheless, whatever the difficulties which beset him, the lecturer must remember that in art, as in religion, the message is everything, the messenger nothing; and that in matters appertaining to architecture more especially difficulties only exist in order to be conquered.

I can never forget my first experience of the Royal Academy lectures on architecture by Professor Cockerell. With him devotion to his art was a passion, chastened and regulated by the refinement of a scholar, and the thoroughness of a most conscientious artist. Urging, both by precept and example, the importance and exquisite beauty of Greek architecture, he was ever ready to hold out a helping hand to the wayfarer in other paths of art, for to him every artist was a brother.

Since those bygone days there have been many changes in public taste and practice; and it can do no harm to recall to memory a time when much was enforced which is now neglected, and to caution the art student, as Professor Cockerell was fond of doing, against mere "fashion" in architecture.

It might be instructive, and certainly would be interesting, to inquire into the various "fashions" which have prevailed since the days when this warning was first addressed by the Professor to the students of the Royal Academy in Trafalgar-square. Greek art and traditions were then more fully recognised by architects, in practice, than is now the case, and the Gothic revival was in its infancy. Professor Cockerell was led by his natural taste, and also by circumstances, to enter into the spirit of the architects of ancient Greece, with all the devotion of an enthusiastic nature, much as was the case with our late distinguished member, Mr. Gibson, with regard to sculpture.

The latter, as we have lately been reminded by Mr. Atkinson, would never tire of maintaining that the Greeks were always right; and his first object, when engaged in composition, was to discover how the Greeks would have dealt with a similar problem.

His architect brother-artist had arrived by study and research at a very similar conclusion. Although not slavishly adhering to precedents, his works are so pervaded with the delicacy and finish of Grecian influences, that we can fancy him ever referring to these classic principles, as the main test of excellence, and repeating, with Gibson, "The Greeks were always right."

He neglected no opportunity of urging, by precept and example, the study of Greek art; and I venture to think, that such advice, although it may not for the moment be fashionable, was never more needed than at the present time.

Professor Cockerell had, moreover, an especial claim to attention, as having contributed, in no small degree, to bring a knowledge of his favourite architecture before his profession and the public. By his discoveries at Ægina and Bassæ he added fresh materials for that appreciation of Grecian art which led thoughtful artists to consider what must have been the exquisite keenness of perception, mingled with a wondrous refinement in regard to the subtler effects of beauty, which animated those architects of old, who had so perfectly learned to work, hand in hand with the sculptor, each being necessary to the other, and each contributing, to an extent never yet surpassed, to the perfection of the work before them. The enthusiasm which the Elgin and other marbles excited amongst lovers of art, led naturally to a strong admiration of everything which belonged to Greek architecture, and to a general attempt to introduce its forms and decorations into the buildings of the day. In this work, Professor Cockerell had no small share; and though some of his teaching may seem to have been since engulphed in those

* Lecture I., delivered March 5th.

whirlpools of fashion which he deplored, it is not easy to prove that our art has passed into a more healthy condition by the adoption of different principles, or by the imitation of different models. I must therefore impress upon architectural students the necessity of studying, with more care than is now too often given to them, the principles of Grecian architecture. This is, of course, a very different thing from advising a pedantic reproduction of forms, or an actual copying of examples, which no one would deprecate more strongly than myself. Too much of this has been done already, and no one can desire the repetition of a movement which encumbered our houses and public buildings with useless features, inconsistent with the wants of the nineteenth century and the exigencies of the English climate. But, while avoiding this snare, can it be useless to draw attention to the refinements which were habitual with the Greeks, although they can scarcely be discovered by our apparently rougher perceptions, without previous study and the practice of critical observation?

The entasis of columns may be referred to as one of the most prominent illustrations of my meaning. No one would now dream of designing a classical column without entasis, but this was not always the case: many modern columns have been made with straight sides, and the discovery of the refinement of the entasis was only made by careful study of the best examples.

Mr. Penrose has shown us how many similar delicacies of proportion exist in Grecian work, to reward the student who has eyes to see and taste to appreciate the hidden beauties which lie beneath the surface.

Surely there are lessons here for the art-student of all times; and who can say that in these pushing, eager, restless days there is no room for the still small voice which teaches that breadth, simplicity, and refinement of proportion and ornament are the very essence of art, and that they may be seen displayed in the architecture of Greece as they have never been before or since.

While calling to mind my pleasant personal recollections of the days when Professor Cockerell enforced these principles from this chair with so much learning and earnestness, and a charm of manner peculiarly his own, these reflections have pressed upon me the conviction that whatever may be the dominant fashion of the day, an investigation of the principles of beauty in art can never be without advantage, and that in such an inquiry the triumphs of Greek architecture must ever hold a prominent place.

I can also the more gratefully dwell upon Professor Cockerell's teaching from a remembrance of the catholicity of his doctrine. Striving by study and careful examination to detect those principles of beauty which must ever be the same, however differently they may be illustrated or emphasised in various styles, Professor Cockerell gave no encouragement to an intolerant depreciation of forms of art which were not those to which he gave his special allegiance. No one could express more heartily and unreservedly his admiration of Mediæval architecture; and some of you may remember the learning and artistic sympathy which he brought to bear on the sculpture of Wells cathedral and other Gothic masterpieces.

As regards this liberality and breadth of view, it cannot be out of place to point out that if, with our historical knowledge, we are ever to have great artistic achievements in the future, the artist must rise superior to those prejudices which would seek to close whole volumes of past history, and would confine him to a narrow line of study, and still narrower sympathies.

It is now seventeen years since Mr. Cockerell retired from the professorship of architecture at the Royal Academy, a few years only before his death, in 1863, which left a gap in our profession that has never been exactly filled. It may well be said of him, that his works live after him, and that he has left enduring claims on our respect and admiration in this place.

In entering upon the object of these lectures, it must, I fear, be admitted that the prospect before the architectural student has never been more beset with perplexity than at the present moment, when so many difficult problems are daily pressed upon us for solution.

What form is our art to assume? On what styles of past days is it to be based? or, is it to be altogether new? In what way are modern scientific discoveries to be dealt with? Is an architect to be a sculptor and a painter also before he can be termed a true artist? These are only a few of the controversies which will readily occur to your minds as now calling for consideration, while, over and above them all, voices are loudly heard proclaiming that our whole system of architectural practice must be revolutionised, and that success will best be achieved by deposing the architect from his post of supremacy in favour of a commune of workmen.

Many signs of the times point to a disorganisation of public taste, leading to an indifference to what is good or bad in architecture; and it daily becomes more necessary to find some resting place on the true principles of art.

If we look around on the state of architecture generally among civilised nations, we must be struck by the fact, that all over the world a period has occurred when its productions have ceased to display the higher artistic qualities formerly inherent in them, as if they had been suddenly paralysed by some fatal disease. In our own country we can trace the wonderful progress of Mediæval art, from the days of Harold to the time of the Edwards, and thence by a process of decline to its fall, in the Tudor reigns. We have since seen revivals, both of Classic and Mediæval types, and of these I must hereafter speak a little in detail. It is certainly difficult to assign the reason why, up to a particular time, it appears to have been natural for men to love and achieve beauty in their works; while, in these later days, ugliness would seem to be the common heritage.

We know that, formerly, every detail of architecture was replete with interest, as if by instinct, so that the very hinges of doors were works of decorative art. This, moreover, was not done, as it might be done now, in exceptional cases, but it was the rule. The men who carried out these works were evidently penetrated with the spirit of their art; and it was as natural to them to work gracefully as it is to the modern workman to create useful ugliness. This difference of spirit dates chiefly from the discovery of printing, and the Reformation, which encouraged freedom of thought, and opened to the intellect of mankind paths till then closed or little frequented.

We cannot suppose that the sum total of human intelligence decreases as years roll on and the world grows older; but may it not be that we shall find the explanation of the apparent decline of the artistic faculties in the diversion of force, occasioned by the devotion of the intellect to other lines of thought and achievement? In past times the want of facile means of communication kept the bodies of men rooted to the spot where they were born, and the absence of intellectual freedom closed to their minds those spheres of usefulness which are now open to all.

Abbeys and cloisters contained recluses, who, in separating themselves from the world, were glad to devote themselves to those artistic pursuits, such as architecture, painting, sculpture, music, illumination, embroidery, and the like, which would add to the splendour of the church and its services, and would be free from any suspicion of heretical free-thinking.

The pursuit of learning has had an opposite effect. It has prevented the intelligence of the world from being concentrated on any one subject, or group of subjects, and it has caused the great mass of the people to care more for philosophy and science than for art.

We are surrounded in this place by the buildings of learned societies, and there are many others scattered about London and the country, while the progress of science adds daily to their numbers. I was astonished to hear lately that for telegraphic engineering, a profession almost of yesterday, there is now an institution numbering upwards of five hundred members.

Before this scientific activity became possible, we may assume that a large portion of the intellectual and constructive powers of mankind which are now given to it was likely to be devoted to some of the various branches of art, which was, in fact, the common language of the educated classes.

We may as well expect to turn back rivers to their sources as to reverse the great tide of modern thought; and all experience of its tendency shows that it flows in the direction of the division of labour. The stream of knowledge is now so great that no man can venture to think he has mastered it all; and even the greatest minds must be content to follow thoroughly some rivulet of truth, while accepting, on other points, the dicta of fellow-inquirers.

This being so, we cannot expect architecture to be any exception to the general law. It cannot command public interest, if it ceases to be the expression of the wants and tastes of men.

Considering, moreover, the tendencies I have alluded to, can it be seriously imagined that the architecture of the future is to be committed to individual workmen, giving no guarantee of harmony, and owing no allegiance to the superior authority of the architect? The whole teaching of experience appears to be opposed to such a proposition, and to prove that the architect of the future should be not only a skilled artist, but also a man of scientific knowledge, and in harmony with the spirit of his time.

While it is true that we should gain by having our buildings expressions of the variety of interest, caused by the devotion of many minds to the details of the work, it is still essential that there should be a guiding spirit, and this must be that of the architect. The true reform of ordinary architectural practice would be to lessen the oppressive burden of petty business cares, which, under our present system, press daily upon him, and tend to deaden his devotion to pure art.

Every age of the world we live in has its own special characteristics, just as is the case with the human unit, and we misunderstand the teaching of history if we suppose that the outward signs of progress must always be alike, and must be the same in kind and degree as those to which men have been accustomed in the past. The architects of old worked, as we have no doubt, in perfect harmony with the spirit of their times, and we must expect to find that their mission and ours differ widely, according to the variation of circumstances and the characteristics of different ages.

In many respects it may perhaps be asked whether architects, in these utilitarian days, do not work under less favourable conditions than their brethren of old. It is difficult, for example, to approach the composition of a great work of art with a mind depressed by insistance on the "lore of nicely-calculated less or more." In private works, of course, financial consideration must always have ruled; but it is not easy to believe that the great public monuments of antiquity were constructed on this disheartening principle.

We can scarcely expect again to have great architectural triumphs, if the question about any important public work is, not—how shall we get a worthy building? but,—how little can it be made to cost? We cannot fancy the architects of Westminster Abbey, compelled to cheapen their design by reducing their mouldings, omitting the diapers and carvings, or leaving out the groined roofs, in order to save expense. It would, of course, be easy to blame architects for failure under such circumstances; but would it be fair to do so?

I only put this question hypothetically; for, though we may conceive that such things might happen in Laputa, we must not suppose that they could occur in a country like ours, so rich and so prosperous, that it is the treasure-house of the world,—a country which provides, moreover, museums, picture-galleries, and a Government department of science and art for the cultivation of the public taste.

Great nations, however, sometimes do little things, and their very greatness makes them impervious to criticism. It has been said that no one but a banker could walk down Lombard-street in a bad hat; and, in a similar way, it is perhaps only rich communities that can afford to show with impunity a public indifference to art. At any rate, in our own case, artists may be allowed to hope that the spirit of utilitarianism, pure and simple, will never be allowed to be the sole guide of public policy in respect of architecture. It will not be creditable to us if history should record that, with pecuniary resources beyond those of any other time or country, we leave as our contribution to architectural art, public works, showing, in their mutilated features, only too evident proofs of a parsimonious origin.

From these possible difficulties of the architect, we will now turn to other considerations. We are often told that a new style is the want of the time, though why this should be required more than a new language, it is difficult to say. We have, however, to decide if novelty is to be our aim in architecture, or if it is to be archæology. Again, is engineering architecture? and if not, where is the missing link? You will perceive how many sided is the study of our art, and how much it differs in that respect

from painting and sculpture. One difference will at once suggest itself, inasmuch as architecture is a science as well as a fine art.

A painter designs his picture, happily for himself, with no thought of constructional or economical difficulties. The shadows which fall so easily from his brush must be constructed by the architect. The latter must see in his mind the effects which he intends to produce, and must build them up, not on canvas or paper, but gradually and painfully by the hands of others. If the result fall short of his expectation, he has no power of alteration, no facilities for heightening lights, or deepening shadows. He must be an artist in his design, a man of science in its execution. His science, moreover, must be useful, and not merely speculative. Architecture must not only please the senses. She has to justify her very existence by usefulness. Externally, she may indulge in grace of form, limited only by the exigencies of climate, construction, and by durability. Internally, she must accept the necessity of being bound to combine convenience and fitness with beauty. The arts of design and of building must not clash; but their combination should give a sense of propriety and repose. They should, in fact, illustrate the lesson which Mr. Weekes taught us so well a few nights ago with respect to sculpture, that "beauty is utility."

Architecture must then contrive and construct its artistic effects, remembering always that they must grow naturally out of the circumstances of each case, and that the greatest art conceals its modes of operation. Nothing can be worse than the obtrusion of details, obviously not required, except for display, sacrificing the higher qualities of art to a pretentious fussiness.

Without ornament, indeed, architecture as a fine art does not exist. Nevertheless, though ornament may be essential, it must be an integral part of true architecture, not a mere *appliqué*, like the beauty patches of the Court ladies of Lely or Kneller.

It follows, therefore, that architecture must be studied by those who would practise it, both as a decorative art and as a useful science.

If to some architecture may seem to be degraded from the position of a fine art by its utilitarian associations, it must not be forgotten that to this circumstance it owes much of its attractiveness to all sorts of people. It may, therefore, be well briefly to consider this phase of the subject, and to pause for a moment in order to examine the grounds of interest which architecture possesses for various minds.

We shall find that it has many charms for many votaries, and that it may be studied for various reasons, and from different points of view. Thus, for some its interest is mainly archæological or historic; for others, scientific; and for others, purely artistic. Of these, the archæological is, perhaps, the aspect which is most common; for who is there so indifferent as not to care for the greatness of the past, and the proud deeds of ancestors? The sentiment of innate patriotism alone forbids that national monuments of architecture inherited from antiquity, and handed down from age to age, should be allowed to perish; and it is, therefore, natural that we should find that a certain archæological knowledge is prized as a necessary part of the acquirements of educated men. Indeed, some sort of archæological taste may be said to be universal, for even in the most savage tribes, traditions and ancestral "customs," often, as we know, of the most horrible nature, are practised and venerated simply for their antiquity.

This kind of archæology is, of course, far removed from art; it interests itself in objects of antiquity because of their age, and not because of their beauty or artistic value; it seeks only to satisfy those cravings for a knowledge of the past, which are as much a part of our nature as the yearning to discover the secrets of the future, which has always pervaded every people, nation, and language.

In architecture, archæologists find a fruitful field of inquiry, apart altogether from any search after beauty. Heraldry, for example, one of the most important of archæological studies, is so allied with architecture that it is difficult to study it without, at the same time, learning to appreciate architectural forms, and the various gradual modifications of them, which have been brought about at different dates. Thus, to mention only a trifling instance, the shape of the shields on tombs, will serve to mark the date of the monument; and no archæologist would confound the early twelfth-century shields of the Knights Templars in the Temple Church with those which abound in Henry VII.'s Chapel at Westminster. In the one case there is a long and simple acutely-pointed triangle; in the other, more complex curves, and a width nearly equal to the height. This, of course, is more an archæological than an architectural detail, but it may be referred to as showing the importance to the archæologist, of observing architectural forms; and such observation would naturally lead up to the more extended inquiry of the architect into those gradual changes of the shapes of columns, arches, window tracery, and the like, which mark so clearly the step-by-step advance and decline of Mediæval architecture in this country.

In nothing has our time been more remarkable than in the impetus given to archæological inquiries, and there are now few parts of the country which do not display results of the activity of those who have interested themselves in the architectural remains of past days.

This archæological taste has found its chief vent in the very remarkable revival of Mediæval church architecture which the present century has witnessed, and to which I shall have to return in my next lecture. A movement partly theological, partly archæological, has covered the country with restorations, and new works carried out in the spirit of restorations. The expenditure on our cathedrals and old parish churches has been enormous, and besides this, new Gothic churches, schools, and buildings, chiefly ecclesiastical, have arisen, as if by magic, around us.

This circumstance is the more remarkable, when we contrast with it the comparative apathy on such subjects, of France, and the continent of Europe. It is also noticeable, as having occurred at a time when free thought is pushed to its utmost limits, and when, in most things, men are little apt to regard the past with unquestioning reverence.

If we ask, however, how far the revival movement has forwarded the interests of art, the answer is not quite clear, and probably the time is hardly come, when a complete answer can be given. A great measure of success has doubtless been obtained from an archæological point of view; but it may be hoped, rather than asserted, that a greater insight has been gained into the true principles of architecture, which may lead it to progressive glories hereafter, such as those that have been chronicled in the past. To critical observers, who regard this state of things with impatience, and are ever calling for novelty and revolution, it may however be suggested that a knowledge of the past is the best education for progress in the future, and that after the period of artistic darkness which marked the commencement of the present century, it was inevitable that any earnest revival should assume an archæological complexion. It may be that this powerful force has now spent much of its power; and it is certainly difficult to see how revivalism, pure and simple, can go much further than it has already done; but the question still remains whether our art in the future is to be based on Mediæval principles, to which alone some would bid us look for the secret of success.

If this is to be the case, it follows that no other style should be cultivated. Is this a conclusion that can be accepted, with the evidence around us, of what the revival has done for us? Is it consistent with the development of the sister arts, in all their fulness in connexion with architecture? May it not rather be due to an exaggeration of that archæological study of which we have been treating, pushed beyond the point at which it ceases to act as a trustworthy guide? It is the more necessary to guard against the fascinations of a purely archæological view of architecture, from the circumstance that our Mediæval revival has been from the outset very much mixed up with questions of religion and ritual. Those matters can of course be only barely alluded to here; but it is necessary for the student to keep them in mind, if he would understand clearly the history of the powerful movement to which reference has been made.

Architecture has in all ages been intimately connected with the religions of mankind, and the great monuments which remain to us are for the most part the result of the devotional feelings of those who erected them. Thus we have the tombs and temples of Egypt and India, the temples of the Greeks, and the cathedrals of the Middle Ages. It was natural, therefore, that any great religious revival should show itself in our architecture. In addition to this ecclesiastical influence, there has also arisen a keen desire to inquire, more minutely than has hitherto been usual, into daily details of past history, and historians have sought to give us careful pictures of the manners and life of olden times. No one pursuing such researches could neglect architecture, which yields the most valuable results, when studied, in connexion with the history of people and countries.

It will thus be seen that to archæologists architecture offers a very storehouse of treasures, and that in that great study of mankind which we call history, the architect, the antiquary, and the historian work hand in hand.

We have now to consider yet another mode of viewing architecture, distinct from archæology, and having little or no reference to its artistic character.

Architecture being, as has been said, a science as well as a fine art, we cannot afford to neglect the attractions she presents to scientific men. Science being essentially progressive, we might fairly expect Architecture, in so far as she leans on Science, to be progressive also; and the complete separation of what we call engineering from all sympathy with architecture is a fact which is rather suggestive than satisfactory.

In seeking to forecast the future prospects of architecture, it is impossible, therefore, to overlook its scientific and mechanical, as distinguished from its archæological and artistic, qualities. No one can doubt that in our time these characteristics of our art will be full of interest to many who, in other respects, care little about it. They will dwell upon the fact that architecture is a useful art, and has no *raison d'être* except her powers to serve the necessities of mankind. To these the science of building offers special attractions. How was it that nations on whom we are apt to look down have carried out works the difficulties of which excite even now our wonder and admiration, in spite of our greater mechanical knowledge?—works, dating, moreover, from what may be termed the infancy of the world? Is our greater mechanical progress only to drive out beauty and enthrone utilitarianism?

The great monuments of Egypt, for example, are sufficient to raise numerous questions of the greatest interest from this point of view—Egypt, whose pyramids, temples, and colossi seem to regard the works of the engineer of to-day, which are now being urged on around them, with the contempt of a mighty unchangeable monarch for an upstart of yesterday. Here indigenous architecture seems to have died out, and Western civilisation is represented by the shriek of the locomotive in the silent wastes of the African desert.

Few things, again, can be more interesting and suggestive than to study the influences of climate, race, and habits, on architectural forms, and to notice how construction has given birth to beauty,—as, for example, by the introduction of the arch, the use of columns, bold projections to shelter from the rays of the sun, and so forth. These may all be termed the utilitarianism of our art, and are as interesting to the engineer as to the architect; but you will see how closely they are connected with artistic beauty, and how necessary it is for the architect to accept frankly and thoroughly the conclusion that his art must be accordant with the laws of convenience and common sense.

How far this conclusion may be carried is the problem before him. Make convenience the absolute ruler, and the result is the ugliness and barrenness of modern engineering. Depose it altogether, and our art will become the laughing-stock of a world, fully alive to all the advantages, though perhaps not a little deaf to the dangers, of a highly-wrought and mechanical civilisation.

Engineering may almost be said to have discovered the use of iron, as employed for construction in these later times, and in the choice of materials, the architect must, in any case, be influenced by scientific considerations. Materials, moreover, govern design. Assuming that the principles of the design of the Parthenon are based upon traditions of wooden construction, we can see that the modifications of size and form of the various parts, which have been adopted in marble, were the necessary consequence of employing a different material. This principle of using fitting materials, and designing accordingly, was never better carried out than by the Mediæval architects of our own country.

Thus, in districts where stone was good and abundant, we find groined roofs and

elaborate masonry. In places where timber was the best material available, we see the curious timber constructions, and the beautiful open roofs which distinguish the architecture of Cheshire, Lancashire, Worcestershire, and some other English counties. The brick architecture of North Germany and Belgium will also readily occur to you as an illustration of this principle, and you will see how our art, in its best days, has always recognised utility. We may be sure it must always preserve this character if it is to retain the respect of mankind.

In the aqueducts of ancient Rome we have a proof that it is not necessary that an engineering work of the most utilitarian character should be tasteless and ugly, and there can be no reason why the architect should not sympathise with the engineer, quite as thoroughly as he has been accustomed to do with the archæologist and historian.

It is, however, the merit of architecture, that while admitting to the fullest extent, the varied interests to which I have referred, it possesses yet another, the greatest and most comprehensive of all, in its artistic character. The mother of art, it welcomes under its roof all that can claim fellowship in that glorious brotherhood. Indeed, architecture cannot be said to discharge its true mission as a fine art in its fullest sense, except in alliance with its two sisters of Sculpture and Painting.

This consideration can hardly be too emphatically insisted on as regards its bearing on the style of the future, of which we hear so much nowadays. With regard to this combination, it must always be remembered that architecture, like music, is a conventional art, while painting and sculpture are imitative arts. Nature must ever be, in a greater or less degree, the teacher and judge of the latter; while architecture can be referred to no rules but its own, and to that subtle sense of beauty and fitness which is implanted in the human breast. It is this instinct, refined and cultivated by art, which forbids that we should be satisfied with the bare provision for our wants supplied by engineering, and makes us desire some grace to be added to the simple necessities of structure. To add this grace without affectation or untruthfulness is the duty of architecture as a fine art, and her work must not only display beautiful detail, but also fine proportions. It is but too common to overlook the absolute necessity of good proportion, and to rely on ornament alone. This dangerous tendency has been, perhaps, somewhat fostered by the greater attention lately given, and rightly given, by students to free-hand drawing. It is a tendency to be carefully watched, as it easily leads to abuses. Nothing can be subtracted with impunity from a perfect work of architecture; but it can better suffer a loss of its ornamental details than an injury to its proportions.

The Greeks were probably the greatest masters of proportion the world has yet seen; but the tendency of our own later time has too often been to ignore this important quality, to the loss of refinement and of true architectural grace. Perfection of proportion does not mean, however, neglect of scale, as is sometimes erroneously supposed. We have all heard it said that St. Peter's at Rome looks smaller than it really is, in consequence of the harmony of its proportions; but this is, in my opinion, altogether an erroneous and misleading statement. If St. Peter's does not impress us with its real size, we must seek the reason elsewhere than in its good proportions, for it can be no merit in a great architectural work to efface itself. An architect is not to be thought successful, if the gross result of his employment of great opportunities is only to produce, at a vast cost, the impression that would be created by lesser efforts. The real truth about St. Peter's is, not that the proportions reduce the apparent scale, but that the harmonious effect of the proportions is marred by incongruous detail and fewness of parts, all on a gigantic scale. The enormous order and huge figures, and not its beautiful proportions, have to answer for any disappointment with St. Peter's. If the parts of its architecture had been smaller and more numerous, with its general proportions remaining as at present, St. Peter's would have appeared, as it is, one of the largest buildings in the world; and the interior, more particularly, would have gained the effects of scale without losing those of proportion which it now possesses.

The student will learn from this example that he must not be satisfied with the sensation of pleasure, or dissatisfaction, which he experiences when face to face with great monuments of architecture; he must inquire the reasons of their success or failure, and seek to define the secret of the harmony or incongruity of their details and proportions.

To those who study architecture in this spirit, beauties will be revealed which are hidden from the mere utilitarian observer, and they will at the same time gain an insight into the difficulties as well as the resources of their art.

Owing to the universal interest which architecture possesses, we find that it can attract the unlearned, probably to a greater extent than the sister arts are able to do.

The grand effects produced by scale alone may often suffice to explain the impression produced, on the minds of the multitude, by an art which does not work in aristocratic seclusion, for the benefit of the few, but appeals openly to the many. Of course, it will only be the few who are qualified, by study and knowledge, to speak authoritatively on its inner subtleties, and its broader characteristics must always be those that will interest the uninstructed observer.

To be able to see properly will ever require education, and the power to criticise is not an instinct, although the power of grumbling may be so. There can be little doubt that an art so essentially conventional as architecture can only be fully appreciated by those who have acquired an insight into its principles. Whether in respect of painting, sculpture, or architecture, whatever there may be of instinctive appreciation in individuals, the power of sympathetic criticism can only be gained by knowledge. In fact, in these cases there is room for what may be called the science of art,—science being, after all, only the concentration of the existing accurate knowledge of any given subject. Indeed, even in observing nature itself, men find the advantage of acquiring instruction, although it might have been supposed that enjoyment of her charms would be a thing of course. There cannot, however, be a doubt that this feeling has varied greatly with different races, and even with different generations, of the same race. Those who know Mr. Ruskin's descriptions,—say, for example, his analysis of clouds, trees, and mountains,—will see how much increase of pleasure in the beauties of Nature herself may be gained by a scientific study of her phenomena, which forms, in effect, the art of "how to observe." Knowledge, then, is required in the critic as well as in the artist, and where it abounds a genuine criticism is of the highest value.

It points out to the younger aspirants the way of progress, and exhibits the moderation and diffidence which accompanies true knowledge. It is, of course, free from that arrogance and bitterness which has led the present Prime Minister to refer to critics as "those who have failed in literature and art."

I have now touched lightly upon the interest excited by architecture in its three-fold aspect,—archæological, scientific, and artistic. The latter quality is that with which we have chiefly to deal in this place, but the others must not be neglected. There can surely be no reason why architectural progress should be regarded as at an end, when we consider the permanent interests which she has in her keeping. Whatever changes the future may bring forth, the art of building must ever be a necessity, and there will always exist tastes, and artistic aspirations, which will refuse to be satisfied with bare engineering. Architecture, then, must ever have charms for all; reserving the greatest enjoyments for those who, having learned to observe properly, can enter into the inner sanctuary. It is not necessary that she should demand a unanimity of taste, which, if possible at this stage of the world's history, would be undesirable; and she is, therefore, able to rely on that universal love of beauty, to which, after all, must be the final appeal of art.

We have seen that there should exist among civilised men an interest in architecture, which, while exerting varying degrees of attraction on different orders of minds, would yet lay claim to a catholicity denied to other developments of the artistic faculty. To the archæologist she offers the key, by which he can open the stores of knowledge of the past; with the engineer, she will co-operate in working out the destinies of the present; while to the artist, whether painter, sculptor, or architect, she gives a welcome, and displays treasures of exquisite beauty and infinite variety. Moreover, striving onwards for the future, while reverencing the past, she does not hoard her charms in any churlish spirit, but throws open her treasures to all the world. She connects herself naturally with the history of mankind, with the public and private life of nations, with their knowledge and progress. She has ever been the handmaid of religion,—the nursing mother of art.

Such has been architecture in the past. What is it to be in the future? Are its triumphs over? Are we to be content with the copying of barren revivals? Surely this cannot be. All sense of artistic beauty has not vanished before the steam-engine. On such of you, gentlemen, as have just entered, or are about to enter, the noble profession of architecture, these questions will press, and from you will require a solution. If they are to be answered satisfactorily, there must be no half-hearted devotion to your art. Moreover, in these days, far more even than in those of Vitruvius, an architect should not be the mere master-mason, to which some writers would seek to reduce him. No one can afford to lightly estimate the value of general culture, and certainly not the architect, as a member of a responsible, difficult, and learned profession.

Remember the catholicity of art, which forbids bigoted intolerance and opinionated dogmatism. Study carefully for yourselves the remains of ancient masterpieces in our museums, and in the grand old buildings both abroad and at your doors, and avail yourselves fully of the facilities which are offered in this place and elsewhere for freehand and figure drawing.

As regards science, do not let it be said that architects are behind the age, but qualify yourselves to take your part in it with knowledge, enthusiasm, and integrity.

Great characters lead to grand ideas; noble thoughts produce noble deeds; and if you will bear this in mind, my first professorial lecture will not have been given in vain.

HEALTH IN SCHOOLS.

AT a recent meeting of the Social Science Association, Dr. Richard Liebreich read a paper on "School Hygiene," from which we take a few passages:—

It is no intention of mine to speak about this vast subject in general, but only to draw your attention to a special point,—namely, to the influence of the posture of the children during school-time.

If grown-up persons daily remain for hours in a stooping position, the unfavourable effect often shows itself in a disturbance of the respiratory or digestive organs. With children the hurtful influence is not limited to the functions, but extends to the shape and position of these organs. I will show you the way in which this occurs on two quite different parts of the body, the eye and the spine. The alterations which these two organs can undergo under the influence of bad posture are chiefly short-sightedness and scoliosis, or lateral curvature of the spine; and in mentioning these two affections together, I by no means choose two examples unconnected with each other. Both anomalies are developed during school-time, and are incomparably more frequent in the educated than in the uneducated classes. Both are under the influence of hereditary predisposition, but developed in a stronger or lesser degree, according to the habitual posture of the children; and, lastly, they act directly on one another, inasmuch as the lateral curvature of the spine favours short-sightedness, and short-sightedness increases the curvature of the spine. I have therefore found myself obliged to examine the spine in a question where my intention was originally directed only to the eye.

Short-sightedness is produced by the lengthening of the antero-posterior axis of the eye. This lengthening originates under the influence of an increased tension of the apparatus by which we adapt our eyes to the different distances. The tension of this apparatus is stronger in proportion as the distance is shorter to which the eye is adapted. During childhood this apparatus possesses a great power of accommodation. If this power is made use of for adapting the eye continuously to a much shorter distance than would be required, that is to say, if, in reading or writing, the eyes, instead of at 12 in. to 15 in., are kept at 4 in. to 6 in. distance from the book, the sclerotic, that is the membrane which keeps the globe of the eye in its shape, giving way by degrees to the pressure, gradually extends in its posterior portion. Thus the shape of the eye becomes oval, and the retina is some-

what removed from the optic media, from the cornea, and the lens. The retina then only receives the images of near objects; distant objects appear undefined, and can only be seen by the aid of concave glasses, whose negative focus corresponds with the degree of short-sightedness.

Short-sightedness is developed almost exclusively during school-life; rarely afterwards, and very rarely before that time. Is this coincidence of time accidental?—*i.e.* does the short-sightedness arise at the period about which children go to school? or has school-life caused the short-sightedness? Statistical inquiries prove the latter to be the case, and have shown at the same time, that the percentage of short-sighted children is greater in schools where unfavourable optical conditions prevail.

The influence of school-life on the lateral curvature of the spine is as evident as its influence on short-sightedness. I am, of course, not referring to any of the curvatures which are the consequence of diseases of the bones and constitutional affections. I only mean to speak of those slight curvatures which, during school-life develop themselves in quite healthy children, and which are so frequent that they have a strong title to the notice of all those who are interested in Social Science.

Parents generally become aware of the fact by the difference in the shoulders of a child. Careful examination shows, however, that some of the ribs of the right side are more projecting than those of the other side, in the part close to the spine. The spine shows a slight deviation where those ribs are attached to it. But though this curvature is the very reason of the deformity of figure just mentioned, yet it is in itself but little conspicuous. The reason is that we can only see the hindermost ends of the spinal processes, and that these ends may still be lying nearly straight, one upon another, while the bodies of the vertebræ themselves are deviating very considerably from the normal position.

All authors agree in thinking bad posture the chief reason of this affection. They principally lay stress upon individual habits, such as resting on one foot while standing, using chiefly the right arm, and so forth. These latter circumstances, it seems to me, are of very subordinate importance; the abnormal posture of the children during school-time, and especially while writing, being the real cause of the evil. For children who have their lessons at home, the posture during writing may vary individually; but for schools it is the same almost throughout. Modifications are only produced by either the left, or the right, or both elbows being ordered to rest on the table. In most cases the resting of both elbows is quite out of the question, the 20-in. allowance not being sufficient for it. In a few schools the children are compelled to sit with the right elbow placed on the table; but as a rule they are told to bear on the left elbow.

At first sight such a position might appear infinitely more hurtful than that required in the class-rooms. That is not the case, however; for as long as a position may be altered at any moment, it is comparatively innocuous, because one group of muscles being tired, another will be called into action by involuntarily assuming another position.

In class-rooms, on the contrary, the pupils are systematically forced, every day, for several hours, into the same unhealthy posture, overtiring always the same muscles, twisting and bending the spine always at the same place, and thereby gradually altering the shape and position of the bones. Some private teachers and parents, instinctively understanding this, have made it a rule for the children to change their posture constantly; and, compared to the system before mentioned, this is not a bad plan. Yet I do not mean to recommend it myself; for although bad posture constantly modified is far preferable to one less unfavourable which remains unmodified, yet the best posture is of course that which is at once healthy and fit to be retained throughout, and such a one it is possible to obtain.

The following, it seems to me, are the conditions required for a normal position:—

The upper part of the body is to be kept straight, the vertebral column neither twisted to the right nor to the left; the shoulder-blades both of the same height are, together with the upper arm, freely suspended on the ribs, and in no way supporting the body; both elbows on a level with each other, and almost perpendicular under the shoulder-joint, without any support; only the hands and part of the forearm resting on the table; the weight of the head freely balanced on the vertebral column, and not on any account bent forward, but only turned so much round its horizontal axis, that the face is inclined sufficiently to prevent the angle at which the eye is fixed on the book from being too pointed.

Nothing can be simpler and more natural than this position, which, however, it is impossible to obtain with the tables and benches hitherto in use.

The study of the conditions under which a normal position becomes physiologically possible has enabled me to design a system of desks, as follows:—

The top of the desk has an inclination of 20 deg. for writing; for reading a greater inclination is required, viz., about 40 deg. This latter is obtained by turning up a flap of 5 in. in width, fixed to the front edge of the desk.

The height of the desk is the same for grown-up people as for the smallest children, the body of children of different sizes being adapted to the height of the desk by modifying that of the seat and of the foot-board fixed to the desk.

All seats have backs, which, for the chairs of private studies, are carefully adapted to the form of the body; for school-benches, the backs only consist of a board of 3 in. in width, which, placed at the right height (2 in. higher with girls than with boys), sufficiently supports the lower joints of the spine, to enable the pupils to keep permanently straight while reading and writing. The distance between the back of the seat and the table is made to suit the three different sizes, and is always just sufficient for the flap to come quite near the child while writing. By lifting up the flap, an interval is produced between bench and table, giving the necessary space for rising and passing in and out.

Mr. Hepworth Dixon, in the course of the discussion which followed, said he agreed with almost every word that Dr. Liebreich had advanced. There was almost a cyclopædia in the few remarks he had brought forward. We had a distinct public duty to perform, and in face of this the expression of opinion from such a society as this, to which the public might look for guidance, was of great use. It had been objected that such appliances as were recommended were too expensive. He did not attach the smallest weight to that objection, even if it were true. When he had advocated the introduction of drill at the London School Board, he had been told that there were no drill-grounds. He had replied to this, that they should be got, and further insisted that England had enough money to do anything that was necessary for the physical and mental education of her children, and that if this were not so, then she had already turned the point from which her decline could be traced. The measure had been carried in opposition to all the pretended economists, and the system of drill-grounds had been adopted in almost every town in the kingdom. Not only had the children reaped benefit by this measure, but by taking more space than was necessary for the mere requirements of the school itself, wells of ventilation and fresh air had been found for neighbourhoods that had greatly stood in need of them. This, in every way, had been, he thought, a very wise expenditure of money. With regard to the improved apparatus the paper proposed, the same arguments would apply. In the old barbarous times, when there was in a school one long desk and forms, all the boys were required to sit, and at these most uncomfortable appliances, certain fixed hours of the day. In any country where education was treated as a matter of science, such a thing would not be submitted to. Now, in Switzerland, desks like one of those exhibited had been adopted. This is the poorest country in the world, and England the richest. They gave more money for the school than for the army, and they were well repaid for the outlay. Education gave them the army, for they spent their money to make the man. And one of the ways by which they made them into good useful men, was by putting them under the best physiological conditions, never overstraining muscles or sight, but looking forward to the time when the children should be men, in no way wasting any force, but trying to make them valuable to themselves, and excellent citizens and soldiers. This was the highest economy. The advantages of the separate desk were great to both teacher and pupil. The power of going round and about him on all sides was a great one. The child was not merely one of a long row, but became an individual child. All the good that came out of this arrangement for the health of the individual was told by Dr. Liebreich, and he (Mr. Dixon) had no doubt it was right. He wished the idea could be carried out in household furniture. The nations of antiquity knew more of the means of securing real comfort in the matter of chairmaking, for instance, than we do. We were extremely deficient in such things.

The chairman (Dr. B. W. Richardson) said the results were important, not only as regarded the family circle, but also in connexion with the physical interests of the nation. In regard to the part of the question which referred to short-sightedness, we knew the writer's knowledge was indisputable, and we had learnt that the objectionable position of sitting led to it. He (the chairman) affirmed this view of the case. But the mischief did not rest at the spinal column; it went far deeper. He saw daily the results, extending to the lung itself. So soon as the condition shown was set up, there was a modification of the processes of breathing,—a want of elasticity, and the results, congestion of the lung, the reducing of the quality of the blood, liability to take cold on the slightest occasion, and the development of phthisis. We get, with the impaired breath, impaired digestion, dyspepsia, and that feebleness which arises from it, and which marks so many school-rooms. While the body is growing, it requires excess of force for this purpose, and all the nourishment and fresh air it can get; but by these maladies it is deprived of them, and it grows up a weak, imperfect body. It is the case more with girls than boys, for their ruder exercises to a great degree counteract the bad effects of unhealthy conditions. The effects of the way of sitting in schools cannot be shaken off, for people grow up and become fixed in them. He (the chairman) had seen diseases hastened and increased by the pressure of sitting in the position which use had made natural. The plan of laying children upon four points of their body is out of all character with physiological requirements. Hard beds, which necessitated this, were therefore objectionable. In bed the body should recline equally. To return to the old-fashioned feather-beds, where all the body is equally supported, would be one of the greatest improvements that could be introduced into schools. If we could begin the reforms now indicated, we should transform the school-room, and should lead to a great physical improvement in the next generation.

THE MANCHESTER AQUARIUM.

IN reply to a request for information, the curator, Mr. Hooper, informed us that the aquarium had been erected *from his designs*, and under his personal superintendence, assisted by Mr. M. Seanor, architect, of Manchester. As we have no belief in the ability of laymen to design a building of this kind, we omitted the words "from his designs," and affixed no architect's name to the view.

We have just now received the following note from the curator, and leave our readers to reconcile the two statements:—

"*Memo.* *Manchester.*

It has just been pointed out to me that, unfortunately, the name of the architect, Mr. Joseph Sherwin, of this city, has been omitted in the article on the 'Manchester Aquarium.' Will you kindly notice this?—B. HOOPER."

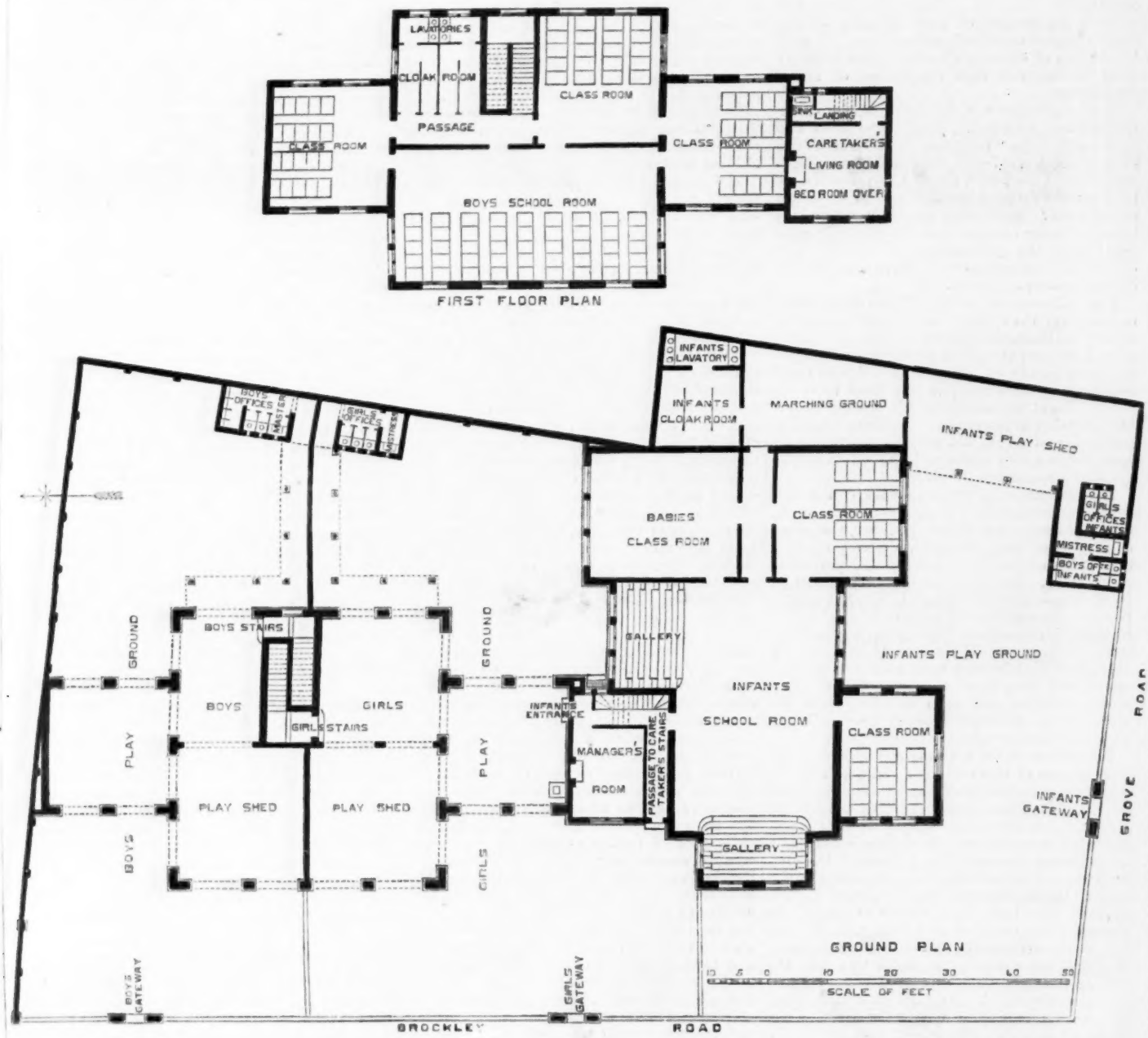
DERIVATION OF TICKHILL.

A REFERENCE to the Ordnance map, No. 82, N.E., will I think prove that Tickhill can have no possible connexion with the course of the River Sheaf; the "Survey" has been freely abused, but I have never yet been misled by the maps.

One may fairly mistrust any such sweeping generalisation as that put before your readers; as to *potamos*, it is a general name for any or for all rivers, not the specific name for any one river.

The Greeks, rightly or wrongly, derived their word from πότος, Latin *potus*, hence our word *potation*; it therefore could not be the original name for a river, as such, seeing that the river would have an existence and a name before men tested the water by its "potable" qualities.

Reference has been made to the now too famous Tichborne. This name was Latinised as "De Itchin Borne"; in English it would be "At the Itchin Bourne." This proves that the initial "T" is the prefixed article, which could not be derived from *Po-Tamos*. A. H.



FOREST HILL SCHOOLS, GREENWICH DIVISION.

LONDON SCHOOL-BOARD SCHOOLS AT FOREST-HILL.

THE London School Board will shortly open their newly-erected schools at Forest-hill, and the educational requirements of this portion of the Greenwich division will then so far be complete. The planning of these schools is based upon requirements of the Board as laid down in their latest instructions to architects, and may be said to embody the expression of the Board's views as to the planning of schools up to the date of Mr. Robson being appointed their sole architect. If this is not the last, it is one of the last of the schools erected under the system of competition inaugurated by the Board during the first year of their existence. The idea seems to have been that it was desirable to obtain the collective views of a large number of architects as to the planning of this class of buildings, and to this end they made their original instructions as broad as was compatible with the regulations of the Committee of Council on Education. Whether the Board really gained any new ideas by the experiment has not been stated; but it is certain that the mode of planning now adopted by them, as shown by the plans of the Brockley-road schools, is very different from that recommended in the first instance. They may be said to embody the views expressed by Mr. Robson in his paper on the planning of schools, read before the Architectural Association, excepting only that the seats are somewhat differently arranged.

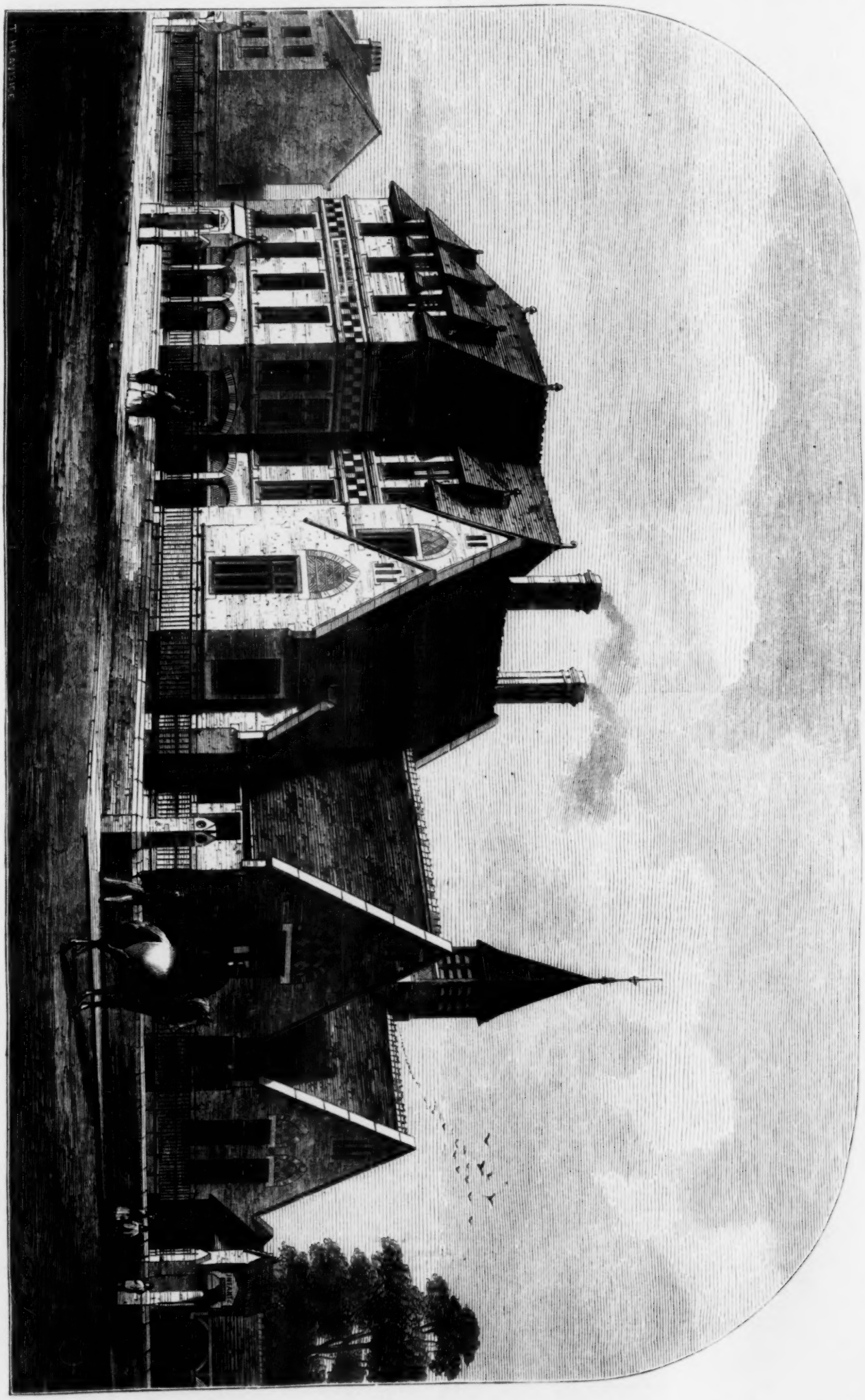
The main building, for boys and girls, consists of a three-story building, and provides on the second floor a schoolroom for ninety girls, with three class-rooms attached. There are cloak-rooms and lavatories on the landing. On the first floor there is similar accommodation for boys. The outer walls of the ground story form an open arcade, and the inclosed space is used as a covered playground for the two sexes. There are covered ways leading from this story to the waterclosets and urinals, the apparatus of which are provided by Messrs. Macfarlane.

It will be observed that the schoolrooms contain no sliding partitions, and that the class-rooms are in all cases distinct apartments. It is not found that any sliding partitions yet introduced are capable of effectually stopping sound, and, therefore, although their use is in other respects desirable, they are only now adopted under exceptional circumstances. The panels of the doors leading from the school to the class-rooms are of glass, so that the head-master and mistress have constant supervision over their respective under-teachers as well as of the large schoolrooms.

The planning of the desks is one of the latest improvements adopted by the Board. They in all cases consist of five rows, and each of these rows is divided into series of two desks with a gangway between them, the object being that the teachers may have the opportunity of reaching the side of each child without disturbing the others. This is an evident improvement over the old system of having the gangways between a series of five or six desks, so that it would be impossible for the master to overlook the work of the larger number of the children without disturbing most of those sitting upon the same form.

The staircase is constructed on the principle by which the height usually lost between one landing and another is made use of for a second staircase, one being for the girls and the other for the boys. This description of staircase can only be used where, as in this case, the distance from floor to floor is 15 ft. or more, and then, if there was only one flight the distance from step to step and landing to landing, would of course be 15 ft., but by making it a double staircase this distance is reduced to 7 ft. 6 in. for each one. The principle can hardly be indicated on a plan, and can only be realised in a model. It is much favoured by the School Board, but the architect of these schools does not consider that under all circumstances it is an economical mode of construction, and certainly in the result it produces a somewhat dreary appearance.

The infant school is a detached one-story building. The principal room has two recessed galleries, and a large area is thus left in the body of the room for marching, but in addition to this there is externally to the school another



LONDON SCHOOL-BOARD SCHOOLS, FOREST HILL.—MR. H. SAXON SNELL, ARCHITECT.

covered space for this species of perambulatory tuition. Two class-rooms, planned similarly to those in the graded schools, adjoin the large room, and a like provision is made for the separation of the babies from the main body of the infants. All these rooms, however, enter out of the one large school-room, and the glazing of the doors provides for their being constantly overlooked.

The caretaker's residence and manager's room are situated between the graded and infants' school, and are three stories in height.

The whole of the buildings are heated by hot-water pipes and apparatus supplied by Messrs. Potter & Sons, of South Molton-street. The gasfittings, seats, and desks are supplied by the Board. The playgrounds are laid by Messrs. Wright & Sheardown with the material known as "tar pavement."

The total cost of the buildings, when wholly completed, will not, it is anticipated, exceed the amount of the original estimate—7,000*l.*

It should be stated that the part of the building on either side of the graded schools containing four of the class-rooms, as also the projecting class-room of the infants' school, is not yet built, but is reserved for future extension.

The total accommodation provided by the plans is for 239 boys, 239 girls, and 320 infants, and the cost therefore will be at the rate of about 8*l.* 15*s.* per child. The floor-space in the graded schools rather exceeds 9 ft. per child. In the infant school the floor-space is about 8 ft. per child.

The builders are Messrs. Howard, Brothers; and the architect is Mr. H. Saxon Snell.

THE ARCHITECTURE OF THE PRESENT AND THE FUTURE AS SOME VIEW IT.

IN a paper read on the 20th February last, before the Church Institute at Leeds, on "The Architecture of the Past, the Present, and the Future," Mr. Seddon, having given a summary of the various styles, remarked:—I have now sketched for you the history of the architecture of the past, from the time of its first consolidation as an art by the Greeks, out of the heterogeneous elements that had previously existed in Eastern countries in a state of chaos; the gradual corruption of that art, and separation of construction and decoration by the Romans; the resuscitation and reuniting of both by the early Christians, and their growth, first, into the round-arched style of the Romanesque, and then into the pointed-arched style of the Gothic, in which science and taste culminated. I have also traced the decline and fall of architecture as a living art, and the inauguration of a system of copyism in its place. I have shown that the copyists reverted to the worst phase of the classic art, and exaggerated the errors that had caused that to be swept away; that they made an arbitrary and abstruse system of their revival, and failed to enlist public sympathy with it, and that when it declined for want of the enthusiasm and talent of those who invented it, a worse chaos than the first supervened. I have noted the spasmodic efforts made lately to reduce this to order by those, on the one hand, who would seek reform again where the Italo-Vitruvians attempted it, and by those, on the other hand, who would try to take up the thread at the culminating point of the Gothic style Upon the issue of this contest so much depends, if there be any use now in architecture at all, that I shall now endeavour to give you some clearer idea of the present condition of things, hoping so far to interest you in the subject that you may not be wholly indifferent spectators to the contest that is going on around you, and with which you cannot help being more or less affected.

Perhaps I cannot more forcibly bring home to you the actual state of architecture, than by asking you to cast your eyes around you in this very town of Leeds, of which you are, no doubt, justly proud, as the flourishing centre of an enterprising commercial district. The love of beauty implanted in our nature, has not yet been wholly eradicated by three centuries of neglect of it in all matters connected with our daily life. The common adage, "God made the country, but man made the town," expresses a general feeling that beauty is only to be found in the scenery we have not yet spoiled, and that we congregate in towns to collect means to enable us ultimately to escape from them. No doubt the desire of all of you is, and it is one of the healthiest you have, to rush as soon as you get a holiday, to your grand moors and lovely dales, to your pleasant woods and streams, to gladden your eyes. Still railway statistics show that no spots attract so readily as those which, in addition to nature's charms, possess some of the really artistic works of man. But what is it you go there to see? Ruins? Even so! Is it then that you gloat over the destruction of the fair abbeys, that once thickly studded your county? that you glory in seeing them falling to pieces in the grasp of giant ivy-stems, which, like boa-constrictors, writhe round and rend them asunder? Is it that you may feed bigotry by triumph, and self-complacency by comparisons not felt to be odious? No! I will answer for it that your sympathy is rather with the old monks, who, if not all saints upon earth, at least by their choice of secluded spots, and their labours of love therein, have touched a responsive chord in your hearts. You can recall, at this lapse of time, that in those rude and troublous times there may have been need for sanctuaries in the wilderness, and you are willing to draw a veil over failing purposes and human imperfections. The roofless fanes and sacked hearths strike a note of sadness in your minds; and if your feelings be roused, it is with indignation at the ruthless spoilers who stripped off and melted the lead for their own greed, who stabled cattle within walls dedicated to prayer, and tore out their carved stones to build barns for themselves.

But if whole buildings be what you prefer, why do you not stay at home and look at your own? You go upon these pilgrimages because you do really love beautiful architecture, when you can get it; because you heartily admire pointed arches, and the rich tracery of Gothic buildings; but you love them none the more because they are tenanted by owls and bats, and are reft of all their storied panes.

You shut your eyes at home because you cannot care for miles of rectangular façades, with oblong holes in them, and are not to be cozened into the belief that because their proportions may be correct, you must learn to admire them, if they have "dressings" enough to set them off. Is it necessary, however, that street architecture should be so doleful and monotonous?

An English town in the Middle Ages *was* a thing fair to see. Church towers and spires marked it from afar; a stately castle, may be, crowned its highest knoll,—not a pompous block, with porticoed centre and balanced wings, but a picturesque structure that seemed to grow from the rocks upon which it was poised—a good protection for friends, but firm repeller of foes. Along the slopes beneath spread the streets of the burghers' houses, which, though modest, had bold gables and quaint dormers, and were well fashioned behind as well as before; and the cottages which lined the lanes of approach, though humbler, were equally good in their way.

But you may think I am drawing from my imagination in this sketch. The fragments of old English domestic architecture of this class are now so few and far between, that though I know nothing elsewhere so tender and artistic as what is left of them, I will ask you to cross the Channel in search of examples there, which have not yet been swept away by the besom of modern progress. The splendid domestic architecture of Rouen has indeed mostly succumbed within my memory to the Parisian type of smug and featureless respectability; but Nuremburg and many other towns yet remain nearly in tact, and can show still that street architecture need neither be an eyesore nor insipid.

I must, however, hasten back to Leeds, and will enter it from the side of Kirkstall, leaving behind the majestic abbey ruins, which some so regard that they would spend a princely fortune in restoring and utilising them, and others regard so much more that they would not suffer the profane hand of the restorer to touch them. May they long stand as they yet do, to teach us how men could once build to the glory of God; and how others, who sought art inspiration in Pagan remains, could desecrate the works of their forefathers. What is to be said of the hovels that meet us as we approach this great and wealthy town? One might be induced to make the antithesis as to the respective makers of country and town stronger than in the old adage I have quoted; and truly the devil might well have had a hand in these, seeing that even decency is an impossibility in them; and if my present theme and want of time forbid their inspection, I may be pardoned for saying merely that their exterior is as ugly as sin.

I may, however, be met with a not unfair remonstrance that I have not chosen well the route of my entry to your town. Upon another occasion I came into it from Woodhouse Moor, and called on my way at a villa of no mean pretensions. I found its inmates lugubrious, and ill-health was alleged as the cause, and it was attributed by them to the flimsy construction and the unsanitary condition of the architecturesque tenement they occupied. I then recommended instant removal to a better, and was met by the assurance that it was impossible to find any other house in the neighbourhood in any way better, and that a leap from the frying-pan would probably be into the fire.

As a stranger I cannot vouch for the truth of this complaint, though I can for the statement. But for your consolation, if it be such, I can say, that were it otherwise, Leeds would be a town highly favoured among many.

Lest it be thought that I exaggerate, I aver that a vast majority of the houses we live in in England are ill-arranged, ill-built, ill-drained, and ill-ventilated; and as to their appearance, our villas are villanous boxes, upon the show-fronts of which some architecturesque dressings are run in cement; but the sides and backs, which are quite as visible, are left in their primitive nakedness. I may be told that what I have as yet described is not your architecture. Then pray! why is it not?

Why, in the wealthiest country, and perhaps the wealthiest age in the history of the world, should the houses of the middle classes be put to shame by the cottages of the despised Middle Ages?

The reason is that we have lost count of the value of art, and have sold ourselves, body and soul, to that curse of the age, the speculating builder, who builds houses to sell, and not to be lived in.

However, I will now proceed—all the more willingly because I know that of buildings that may fairly claim to be architectural, Leeds has a goodly store; and I so hunger for such, that I am not in a mood to be hypercritical. I must pass, as you know, a forest of tall chimneys, which, thanks to legislation, have their ugly mouths mostly shut.

But why are they and their mouths ugly? Some towns in Italy are crowded with long slender shafts, which were towers built by the inhabitants in lawless times, to enable them to watch their neighbours, and they are not ugly. Depend upon it, in the Middle Ages factory chimneys would have been, as they may be, made picturesque, and that without extra cost. It is the will that is wanted, and then the way would be quickly found.

At last I arrive in your principal streets, and survey your buildings devoted to commerce, and am struck by the Great Northern Hotel, which is one of the first to greet me. This is a fine and sensible building, well massed, and allowing one to walk round it, without finding out a part that has been forgotten. I should, however, like to relieve the two struggling figures which, with insufficient foothold, are overpowered by the weight of its angles.

In the principal streets, which I soon reach from this point, I see where your architecture really is, and that for it wise recourse has been had to professional architects, and mostly to those very able ones whom you have resident among you, and who have already done much to elevate the character of these streets. Still, as elsewhere, their works are so diverse in character, that it seems well to remind them that union is strength, and I should be glad indeed if aught I say could tend to the concentration of their efforts in a right groove.

The majority of your commercial buildings are, according to the fashion of the day, designed after Italian palaces, to which the fine stone of the district and commendable reticence as to the use of applied orders give a good business-like air. The monotony of regular compositions does not, however, produce a lively effect, and the individual features are open to the objections raised to the originals of which they are copies, and even with which considerable licence has often been taken. The perspective effect, too, of a series of formal blocks treated independently and jammed close together as necessary in streets, with horizontal cornices and strings at different heights cut short abruptly, can never be charming. So that when I sum up the result of this Italian portion of your street architecture as certainly not worse, and upon the

whole a great deal better than most, I trust not to be thought to have come to a too harsh judgment with respect to it.

But what is this vernacular Italian architecture at its best?—deadly respectable and commonplace, yet vastly costly. Go again to Nuremburg or Cologne if you would see what warehouses might be, by simply emphasising their real structure, and introducing here and there a quaint bit of ornament to shine like a jewel because of the plain common-sense setting around it.

You have, however, some excellent specimens of Modern Gothic in your streets, as, for instance, this "Church Institute" building, and I am glad to see that even a majority of those buildings that are now rising in them are of this style, and, on the whole, very well treated. I notice comparatively few of those startling and vulgar parodies of the style which have led one of our first Gothic architects lately foolishly to abandon it, and to rush to the abortions of Queen Anne's time by way of a protest; and I congratulate you upon not yet having any of that rubbish itself.

You have in the Beckett's Bank a sumptuous example of the Mediæval style happily adapted to modern requirements. Your great infirmary by the same eminent architect, is a work which perhaps more limited means prevented from being quite so successful. But this is doctrine I hesitate to endorse, because I am anxious to show that Gothic architecture does not depend upon costly work; and modern town buildings in all styles are usually much overdone with detail, and I never feel to want more, but less enrichment and better than one gets.

Finally, as to your noble Town-hall, with its stately columnar façades, and recessed portico, and pyramidal composition, well raised upon imposing flights of steps. It is a costly sacrifice to architecturesque effect. It should be put to the same use as the classic temples it affects to imitate. Built primarily with reference to external regularity of design, the internal accommodation has been necessarily cramped to get it into its rectangular shell. Preserve it as a votive offering to admire, and build another structure to use, into the interior of which light can be freely admitted, and wherein sound be not obstructed by architectural features constructed for display.

In concluding this summary of present architecture from the sources with which you are familiar, I ask if, all credit being given for much isolated merit, they collectively form a true reflex of the character of this age as the past living architecture of its time? Feeling,—nay, even hoping,—that the answer must be in the negative, I ask, can we look more hopefully in this respect to the architecture of the future?

I have left myself little space for speaking of the architecture of the future. Fortunately it needs little at my hands. The first thing needed is real, not affected love for it on the part of the people. If there be demand there will soon be supply. May it be a result of the education movement of the day that all men should crave for beauty in their homes. By degrees the love of art would become an instinct, as it once was. As to the character of that art, we must recognise that it will necessarily remain *eclectic*, but public taste would require that it be pure. From the stand-point we have arrived at, we can and soon should avail ourselves of the accumulated experience of the past, and have no need to seek out a new style for ourselves.

In choosing an architectural language for our use, it would be folly not to take the most comprehensive, and we are certainly bound to take the most true. But having chosen a style as a *point-de-départ*, let us turn our attention to the wants we have to fulfil, and not hamper ourselves with preconceived notions of regularity. The interior must dictate the exterior, and giving lovely forms to the features they need, let them be their own decoration. Abandon all false masks, and use no features that are not wanted, and those in strict accordance with their meaning. We may then safely leave our works to speak for themselves, and those that come after us may perhaps find a character in them we do not ourselves discern, which they, if they like, may designate as *style*.

The most pressing task before us is to provide better dwellings for the masses, and though this must be primarily in a sanitary point of view, it might be so in an architectural sense also, as had been proved by several recent enlightened experiments.

The reform we look for must thus come from below,—at least, there it is most needed.

Addressing the members of a Church Institute, I may in conclusion remark that almost all the monuments of the *past* of which I have spoken have been dedicated to religion, and it has been of those erected by the Church that I have named as embodying the highest material and spiritual aim, the noblest compositions of science and art. Our churches remain often the sole landmarks of taste that have survived the last few centuries, which have been the only dark ages, artistically speaking, in the world's history. By far the best and most numerous of the works of the *present* which deserve the name of architecture are ecclesiastical, and therefore it is to the continuance of enlightened patronage and encouragement from the Church that I, as a member of the architectural profession, look forward in hope with respect to the architecture of the *future*.

HEMISPHERICAL BELLS.*

WE now come to the more immediate subject of this paper, hemispherical bells, and modern improvements in the machinery for carillons and chimes, and I would wish it to be distinctly understood that I do not for one moment desire to be understood to say that this shape of bell will supersede to any great extent the church-bell shape, or that the power of the tone of one is to be compared to the power of tone of the other. In the hemispherical shape a 4½ cwt. bell will produce the same note as 25 cwt. in the church-bell shape, and it is quite obvious that 4½ cwt. cannot produce the same volume of sound as 25 cwt. Moreover, these bells cannot be swung. But what I do say is, and my firm have proved it in practice, that hemispherical bells can be used most advantageously in places and spaces of peals of eight and more, with all the machinery necessary to produce the required effects of change-ringing, quarter-striking, and tune-playing, where the other shape could not have been used,—first, for want of space; and, secondly, in many instances a most serious consideration, on account of the cost.

That they and our machinery will prove useful in providing for a want which has been greatly felt of late years, viz., the supply of bells and filling the place of ringers in neighbourhoods where they are not to be found, I have no doubt whatever; and I am also of opinion that a very large field for their use exists in towers and turrets attached to country mansions. Their sweetness of tone is eminently suited for this purpose, as all the charming effects of bell music may be obtained from them without the tinkling sheep-bell sound of light peals, or the impossible expense and overpowering sound at short distances of peals of the ordinary shape sufficiently heavy and deep in tone to give good effects.

It is not proposed to enter in this paper into the question whether or not hemispherical bells are constructed upon scientific principles. I cannot really tell you upon what principle they are constructed. I have never put the question to the founders of them, for the (to me) satisfactory reason that I do not believe they would tell me if I did. At present I have quite enough to do to make use of them when made. Given the necessity of having to produce them, I would face the difficulty in the same way as I have faced other difficulties, and with what success I leave others who know me to decide. All I propose to do is to give some information respecting accomplished facts with regard to them and the chiming machinery which we have made, and are making, under the patent of Mr. Imhof, taken out on the 29th of September, 1866,—information which we have ventured to think may prove to be interesting to our fellow-members in this society. From time to time we have applied them in isolated cases to clocks with invariable success, but it was not till 1870 that we had an opportunity of ordering a peal of sixteen for a tower at Colonel Tomline's, Orwell Park, a few miles from Ipswich. Messrs. Mears & Stainbank, who have given great attention to the founding of hemispherical bells, cast them for us with the most perfect success. The smallest in the peal is 1 ft. 4 in. in diameter, and weighs 3 qrs. 13 lb., from which they run down to the lowest in the peal, 3 ft. ½ in. in diameter, which weighs 6 cwt. 19 lb. The hour-bell is 3 ft. 6½ in. in diameter, and weighs 9 cwt. 2 qrs. 5 lb. The peal is in the key of F*b*, with two half notes, the key which we consider best adapted for bell music, and was the first of that number and size ever cast. The whole weight is about two tons and a half, and the bells are arranged in two tiers of wooden bell-frame, the cranks leading to the machinery being placed in the centre of the two, and leading right and left. The whole is contained in a space 7 ft. 9 in. by about 11 ft. high, tier above tier, each bell in its own compartment, so as not to interfere with or stifle the sound of its next-door neighbour. When the bells arrived at the foot of the tower, it was unanimously considered by the builders' *employés* engaged on the estate that the tower would not hold them, but, to the intense astonishment of every one, the bell-frame and the bells were all fixed in their places in less than a week, with 2 ft. out of the 9 ft. unoccupied. Our first object in undertaking work of this kind is to see the place the bells are to go in, and then to obtain from the architect of the building tracings of the bell-chamber. We then design and carefully draw to scale the bell-frame and bells, knowing approximately their dimensions, so that they are as good as placed, for all practical purposes of construction, in the tower before they are actually cast, and we are then able to state with the greatest accuracy what sized bells can be used. The facility with which these bells can be fixed in their places is one of their numerous recommendations. A hole is drilled through the crown 1¼ of an inch diameter, and through this and the cross-beam of the bell-frame which is to carry it is passed a bolt, secured by a nut and washers, and in this way each is fastened to its own beam, and upon which are fixed the hammers and counter springs to prevent chattering in the blows, so that, falling as it does from the centre of the bell, the full force of the blow of the hammer falls upon the bell. The machine which we manufactured and applied to these bells, chimes the Cambridge quarters the same as the Westminster clock, and plays one of seven tunes twice over or not, at will, each third hour, with one weight and one train of wheels, but does not strike the hours. A clock being already there, it was thought desirable to alter that for the purpose. It may be here observed that we are making, by gracious command of her Majesty the Queen, a machine for St. Mark's, Victoria-park, which does all three with one weight and one train of wheels. The patent, under which these machines are manufactured, is the sole invention of Mr. Imhof, and consists in the discharge of the hammer upon the bell by means of a pin in a wooden barrel, and the provision of a cam action to again raise it to the catch from which it was discharged; thus doing away with the difficulty which is experienced in preventing the wear of the pin in the barrel, and the end of the lever in the old principle, where the hammer is raised by the pin in the barrel acting upon the end of the lever to which the hammer is attached, and so lifting it and allowing it to again fall upon the bell and strike the blow; thus from the very first, two defects from wear arise—the pin and lever both wear, and the time of the music and draught of the hammer are consequently affected. Mr. Imhof's plan is now universally acknowledged to be the only one suitable for the purpose of chiming machines. No doubt many improvements have been made since he designed the first machine, and I am sure that he most readily admits it; but at the same time the fact should not be lost sight of that to him alone is due the credit of inventing the separating of the discharge of the hammer from the lifting-pin, and it is this which constitutes the mainspring of all the improvements which have been from time to time introduced.

* From a paper by Mr. Geo. Lund (of which a portion was printed in our last, p. 201, *ante*), read at the Society of Arts.

THE PRIMITIVE THEATRE.

CERTAIN Shaksperian discoveries which Mr. Halliwell has been incubating for about five years, bring out very clearly, if not finally, the nature of our great dramatist's business relations with the stage.

He was actor and playwright, producing dramas as stock-property for his company, with a joint share, as part proprietor, in the regular takings of the *house*. He was neither freeholder nor leaseholder, but, as a member of the "company," he was partner with those who held or represented such rights.

All takings were subject to division; actors, like Shakspeare, sharing in the profit of a certain portion of the building called "the house," and in that reserved portion only. Be-

sides this share, actors had a small allowance dependent on their status, and there was a fixed payment for the poet.

When these facts were first mooted, I saw at once the analogy existing between this term, "the house," and the modern use of the same expression when, in theatrical parlance, we talk of "a full house," or of that burst of applause called "bringing down the house."

To understand it fully, we may place before ourselves the ideal of a primitive theatre. One sees, "in the mind's eye, Horatio," a certain corps of strolling players enter an old-fashioned hostelry, such as the "Tabard" *was* in Southwark, the "Four Swans" or the "Green Dragon" at Bishopsgate.

The players would "act" in the open yard, and to them enter at the inn-gate all persons so disposed to witness the performance; this general public, the "pit-holders," being then termed *groundlings*; a body bound to applaud "to the very echo," ready to catch at any allusion, not squeamish as to a *broad* joke, but to be conciliated rather than set at defiance.

Round the open yard runs a tier or tiers of balconies, opening into the guest-chambers, to which they give access by stairs, and festooned with drapery, now represented by the "galleries," but at that time furnishing the *élite* of a player's audience.

The leader, scanning this assemblage, forms his own conclusion as to his prospects: will it be a "beggarly array of empty boxes," or a "crowded house"? The play proceeds; groundlings maintain their character, and, as the action develops in interest, the occupants of the "boxes" warm up; the favourite actor at length appears, and, delivering his most telling scene, "brings down the house" by exciting the tenants of these pseudo-boxes to universal applause.

Now for the result. The players could not exact rent from the temporary occupants of a guest-chamber: so I conclude that, when this applause became apparent, and the interest of the audience was most unequivocally shown, a *collection would be made.*

This bringing down "the house" would then have a substantial result in a liberal pecuniary reward. A. HALL.

SALE OF CORPORATION BUILDING SITES IN LEEDS.

THERE has been a sale of building sites, &c., acquired by the corporation of Leeds in connexion with street improvements. The sites offered for sale were twenty-eight in number. Lot 18, having a frontage to the river of 37½ ft., was disposed of to Mr. A. H. Thompson, architect, for 771*l.* 15s., being at the rate of 5*l.* 5s. per square yard. Lots 19 and 20, the one having an area of 66 square yards, and the other 60 square yards, sold together for 1,008*l.*, being at the rate of 8*l.* per square yard. The next two lots, having together an area of 106 square yards, sold at 7*l.* 7s. 6d. per square yard; total, 791*l.* 15s. Lot 23, with an area of 116 square yards, sold for 941*l.*, being at the rate of 7*l.* 5s. per square yard. Lots 24 and 25, having together an area of 277 square yards, were sold together, at the rate of 5*l.* 5s. per square yard. In connexion with Call-lane and Market-street improvement, the only lot disposed of was lot 27, being a shop site, with a frontage to Call-lane, and having an area of 87 square yards. It was sold to Mr. Edward Wray, builder, for 1,044*l.*, being at the rate of 12*l.* per square yard.

LECTURES ON INDUSTRIAL CHEMISTRY AT THE SOCIETY OF ARTS.

MR. FREDERICK FIELD, F.R.S., read last week at the Society of Arts, Adelphi, before a very large audience, a paper "On the Paraffine Industry of the Country." Professor Odling, president of the Chemical Society, presided, and it being the opening meeting of the chemical section, he delivered a brief preliminary address on the importance of industrial chemistry, showing how various products of manufactures were produced by purely scientific processes which chemists adopted in the laboratory. He strongly recommended the study of chemistry both in a scientific and practical point of view. Mr. Field's paper which followed gave an interesting sketch of the discovery of paraffine, its constituents, and the processes of manufacture, and the different efforts which had been made to turn it to practical account in the shape of oils and candles. An attempt to make paraffine from Irish peat failed commercially; but in 1856 Mr. William Brown, of Glasgow, was more successful, having succeeded in that year in introducing into the market candles at 2s. 4d. per lb. made from paraffine, extracted from shale, which is now generally employed in this extensive branch of industry. Paraffine is also obtained from "curly" cannel, "smooth" cannel, and "bottom" cannel, in varying proportions. As an instance of the extent of this industry, he stated that in Scotland in 1872, from 800,000 tons of shale, 100,446 tons of crude oil, and 5,800 tons of paraffine were produced, and at an expenditure of 500,000 tons of fuel. Several interesting experiments illustrating the different modes of manufacture accompanied the lecture, and these were exhibited to the audience by Messrs. Field,—including paraffine, crude and manufactured, a variety of candles, and a fine bust of Shakspeare which nearly resembled pure white marble. There was also a fine collection of lamps by Messrs. Dietz & Co. burning paraffine and petroleum oils, which gave a light as brilliant as gas, but softer, and, it was said, at much less cost.

AMALGAMATED SOCIETY OF YORK ENGINEERS.

THE members of the York Branch of the Amalgamated Society of Engineers have held their anniversary supper at the Punch Bowl Inn, Stonegate. About 100 members from the railway and different shops of the city were present, and the chair was occupied by Mr. Jacob Burchell, the president of the society; Mr. Joseph Newcombe, of the Railway Plant Works, officiating as vice-chairman.

Mr. Wm. Berry (secretary of the branch), in responding to the toast of "Continued Success to the Amalgamated Society of Engineers," gave a lengthy review of the establishment and progress of the society. It was in the year 1847 that about twelve or fifteen members of a trade society obtained employment on the North-Eastern Railway, and opened a branch of what was then known as "The Mechanics' Society," whose meetings were held at the Crown and Harp, Mount Ephraim, in this city. From that the York branch took its rise. The Amalgamated Society progressed year after year until at the present time it had a roll of 42,420 members. It now consisted of 362 branches, dispersed as follows:—England, 262; Scotland, 39; Ireland, 11; United States, 30; Australia, 7; Canada, 5; Turkey, 2; and East Indies, Queensland, Malta, and France, 1 each. Mr. Berry then proceeded to remark on the working of the society—how its trade and benevolent branches were successfully carried out,—and stated that the present balance in hand amounted to a little over 200,000*l.* While they had this surplus the wants of members had not been neglected, for the society had paid no less a sum then 986,436*l.* In the York branch they had risen from 15 members to 160, and they now enjoyed a balance in hand of 759*l.* 9s. 1d.

SCHOOL BOARD SCHOOLS.

Walworth.—The opening of the new Board school in Walworth-common has been inaugurated by a public meeting: Mr. G. H. Currie, vice-chairman of the London School Board, presided. There was a very large attendance. The Chairman, in the course of his opening remarks, said the opening of the school ought to be a source of great congratulation to all who lived in that neighbourhood. It was a school perfectly provided with every appliance that would enable boys and girls to act their parts with credit in the world. There would be the advantage of good teachers, and the great advantage of having the school managed by persons who lived in the neighbourhood, and thoroughly acquainted with the wants of the district. The chairman handed the key of the building to Mr. Day, as the representative of Mr. J. E. Tresidder, who was absent.

North Kensington.—The opening of the large new schools by the London School Board in North Kensington gave an opportunity of testing the public opinion of the working population with regard to the educational work now being carried on. The schools are in the midst of a large new town between Westbourne Park and Notting-hill, and the opening ceremony attracted a very large company. Dr. Gladstone, one of the Board members for the division of Chelsea, presided at a meeting which was held after a general view of the schools, and he briefly opened the proceedings. Mr. E. H. Currie, the vice-chairman of the London School Board, in handing over the schools to the committee of local managers (composed of ladies as well as gentlemen), stated that they were for 1,100 children—300 boys, 300 girls, and the rest of the space for infants. The site, he said, was well chosen and the schools well built, and the arrangements were such as to insure that while the child was being educated it was at work in a well-ventilated room. It was satisfactory that this was a cheap school, for it had cost only 6*l.* 14s. 4d. a head, and with its playground it stood on nearly an acre of ground. So much space could not always be obtained, nor at the money this had cost. With regard to the work the Board was doing, by the end of this year it would have 88 schools, built for 81,000 children, in full work. The effect of its work would be that every child in London would have the opportunity of receiving a good education; and more than that, by the action of the Endowed Schools Commissioners every child who had the ability would have the opportunity of being pressed forward to a higher position. At the present time the Board had 40,000 children actually in its schools, and the education being given was far above mere reading, writing, and arithmetic.

Walsham.—New schools in connexion with the North Walsham School Board have been opened. The schools form a quadrangular group, and are built with red brick relieved by Bath stone dressings. The architect is Mr. Bottle, of Yarmouth; the builder, Mr. Robinson Cornish, of North Walsham. The cost will be about 3,350*l.*

THE PUGIN TRAVELLING STUDENTSHIP.

IT has been announced that of ten candidates who had submitted drawings and testimonials in competition for the Pugin Travelling Studentship of 1874, the Council have elected Mr. Richard C. Page, of 15, Clarendon-street, Warwick-square, subject to the conditions prescribed in the Pugin deed of trust. They considered the drawings submitted by Mr. Edwin J. Munt, of 10, John-street, Adelphi, W.C, so excellent of their kind, that they have awarded that gentleman a medal of merit. The Council also distinguish by honourable mention the drawings of two other candidates for the studentship, viz.:—Mr. W. Wood Bethell, of 19, Craven-street, Strand; and Mr. William Wilson, jun., of 14, Hanover-terrace, Regent's Park.

CAFÉS FOR THE PEOPLE.

THE Earl of Shaftesbury has presided at a meeting held in the London Tavern, with a view of forming a "People's Café Company." The object of the promoters of the scheme is to establish places of resort and recreation for working men, conducted on temperance principles, but sufficiently attractive to compete with the beershop and the gin-palace. The promoters, in a preliminary notice which they have issued, point to the success that has attended Gatti's establishment in King William-street, Strand (which in past years we have more than once drawn attention to as an example, in a higher class than workmen, of what might be done); Dr. Barnardo's Coffee Palace, near Burdett-road Station; and Mr. Corbett's dining-rooms, in Glasgow; as a proof that the people will not be wanting to make use of such places when the places are ready for them. Dr. Barnardo and Mr. Corbett were present, and stated the result of their experience on the subject.

Canon Ellison advocated the establishment in London and other large towns of street booths, after the fashion in Paris, for the sale of summer beverages.

Sir Charles Trevelyan also spoke, and promised to do all he could in support of the proposed plan.

The Earl of Shaftesbury said that the scheme, if carried on at all, must be conducted upon strictly commercial principles, which, of course, might at the same time embrace the philanthropic principles mentioned in the prospectus. The working man should be fairly started, and then left to fight his own battles. What the company had to do was to place itself to these men in the same position as the big brewer stood to the public-house keeper—lend them money to start

these houses, and then leave the management to them, merely stipulating that it should be conducted on strictly temperance principles. His lordship proposed that a preliminary committee should be formed to draw up the prospectus, issue circulars, and consider generally the various matters of detail that were necessary to the regular formation of the company and a formal appointment of a board of directors.

A list of names, among which were those of the chairman himself and Canon Ellison, and also of Mr. Kenward and Mr. Winton, as representatives of the working men, was accordingly submitted to the meeting and approved.

SURVEYORSHIPS.

AT a recent meeting of the Ipswich Paving and Lighting Committee, the chairman read a letter from Mr. Buckham, the surveyor, asking for an increase of salary, and enclosing a tabulated statement, showing the salaries of the surveyors of thirty-one other towns of about the same population as Ipswich, and showing that his salary was considerably lower than that of the surveyor of any of these towns. He called particular attention to the following, as being the towns the nearest to Ipswich in regard to population:—York, salary 400*l.* and 220*l.* allowed for assistance; Bury, Lancashire, 300*l.* and 120*l.* for assistance, and the surveyor is allowed to take private practice; North Shields, 300*l.* and 169*l.* for assistance; Yarmouth, 300*l.* and 2 per cent. on special work; Wigan, 300*l.* and extra for special work; Cheltenham, 300*l.* and 350*l.* for assistance; Ipswich, 200*l.*, no extras, and not allowed private practice. The area of the Ipswich district was much larger than in any of these towns, and the mileage of streets and roads double. He asked the board to raise his salary from 200*l.* to 300*l.* He had been surveyor for three years, and thought his qualifications were such as entitled him to make the request. If the board increased his salary to any less sum than 300*l.* he suggested that they should not object to his making plans and doing private business after office hours. The consideration of the application was adjourned.

FIREPROOF CONSTRUCTION.

SIR,—As this topic is uppermost just now in the minds of many, perhaps a few words from one who has given the matter considerable attention will not be out of place.

I consider that common lime (carbonate) should not be used for the purpose of building, but that sulphate of lime should be the base of the cementitious portion of the work, for the following reasons.

It has been proved by experience that sulphate of lime will last, as in the Pyramids of Egypt. It is also well known that sulphate of lime, when attacked by water when red hot, will not crumble as will other limes, but retains its form. Hence, I maintain, its superiority in fireproof construction in every respect over carbonate. Buildings constructed with it would be comparatively safe after a fire. All concreting for fireproof work should be done with cement of which this is the base.

I could say much more, but consider that it is sufficient just now to make the suggestion, so that the subject may be fully ventilated, and I should have much pleasure in furthering to the best of my means any experiment for the purpose of solving the problem.

J. CUMBERLAND PART.

WARMING HOMES AND HEARTS.

SIR,—It is a curious fact that while we are here more and more heating house and hall with the dry arid air from hot cast-iron pipes and American stoves, our Transatlantic cousins themselves have denounced their cast-iron stove and furnace-pipes as the Juggernaut of America, which, in city homes, in rural dwellings, in public offices, in churches, in railway stations, cars, steamboats, and the like places, make winter life there a burden. "Carl Benson" tells them that the proper mode of heating rooms is by wood or bituminous coal fires, there being no way of getting warm and keeping warm so pleasant or so healthy as that by radiated heat. What is there to hinder the peat of this country from being now introduced by the heat-compressing companies formed last year, for throwing a healthy glow of antiseptic warmth into every Scottish home? The sight of the blazing peat is cheering, and has a real hygienic value that ought very much to counterbalance our stupid stylish antipathy to peat-reek. But then the economical question comes up—open fires of coal are most wasteful of heat, and the most costly as to material, of all modes of warming houses; yet, however we may condemn the expense, who would not like to indulge in that luxury all the winter through? An American writer asks, what do we read in the Bible about seeing the glow of the fire in cold weather? "Aha!" says the man in the Bible, "I am warm; I have seen the fire." To see the fire now is as comforting as it was two or three thousand years ago, and proves to us that the proper mode of heating rooms is by wood, coal, or peat fires open to view. Gladdening the heart with the sight of the blazing fuel, and at same time to utilise the heat of the flame and the smoke, is a problem that will yet be solved by an adaptation of the great German porcelain stove to our domestic hearths and homes. The Chinese, the greatest economists in the world, with their heated walls and porcelain floors, would also teach us at little cost how to be cozy both "but and ben."

JAMES KERR.

ARCHITECTS' RESPONSIBILITIES.

TIMMS *v.* KERR.

SIR,—The monstrous decision of the jury in the above case ought to rouse every member of our profession; and my proposition is, that each of us subscribe a guinea; that the president of the Institute be asked to act as treasurer; and that the question be argued before the judges, and, if necessary, carried to the House of Lords, that we may know our positions and responsibilities; but to allow it to pass and drift into a precedent will be to neglect a duty we owe to ourselves. I cannot imagine the fiat of the jury passing unchallenged, especially as the finding is in direct contravention of the judge's direction; so much so, indeed, as to shake my faith in that palladium of justice,—twelve men in a box.

Why should we be responsible for time when we are so frequently harassed by delays and obstructions of many kinds, to say nothing of actions for light and air, strikes, and the like?

I would recommend the practice of noting everything, in a diary, by deputy, who may be very useful as a witness; and, when clients are troublesome, enter the time of day at which interviews take place, works are visited, or directions given. I have found such a course very useful.

J. E. KNIGHTLEY.

CHARGE AGAINST A BUILDERS' IRONMONGER.

DURING the last six weeks the attention of the building world in the south-western district of the metropolis has been directed to a case before Mr. Arnold, at the Westminster Police-court, and who has at great cost, both to the prosecutor and the defendant, remanded the hearing no less than six times.

The prosecutor is Mr. Warren Smith, gas-engineer, of College-street, Chelsea; and the defendant is Mr. Richard Head, builders' ironmonger, of King's-road, Chelsea, who is now on bail to take his trial at the Middlesex Session, for feloniously receiving a 2-in. main-cock, forty-one brass cocks, fifty knee-sockets, four cups and balls, one bracket, and ten brass unions, the property of the said Warren Smith.

From the voluminous evidence adduced, it appears that on the 19th of December last, a gasfitter named Christopher Corp, was arrested on a charge of stealing brass-fittings from Mr. Warren Smith's workshop in Chelsea. This man had been a constant customer to Mr. Smith for fittings, but each time of his calling stock disappeared in a mysterious manner, and this led to holes being bored in a door, and a watch being set. Corp was caught stealing a quantity of valuable gas-fittings, for which he received a sentence of seven years' penal servitude. Up to this time Mr. Head's name had not transpired; but on the 30th of January, the convict Corp revealed to the chaplain of the prison that he had been robbing Mr. Smith ever since May last, and that he had sold the greater portion of the stolen gas-fittings at the shop of Mr. Head for sums below their real value. A search warrant being granted, the articles above enumerated were found in Head's shop, the greater portion being publicly exposed in the window for sale.

Mr. Smith deposed to finding the property, and said he could swear to the main-cock, the cup and ball-joints, and the ten unions as being his property. The other articles he merely believed to be his. There was a large quantity of property in Head's shop, which he believed to be his, but he only instructed the police to take possession of that which he could swear to. He could hardly form an approximate value of the property stolen, but he should say about 150*l.*

In cross-examination, Mr. Smith admitted there were no marks on any of the fittings by which he could identify them. The main-cock he had had by him six years, and he recognised it in the same way he would his own hat. The cup and ball-joint he identified by the shape. Head assisted the police when they searched his place, and he had frequently bought goods of witness, but they were principally iron fittings. He believed he had never purchased any brass fittings, but was not positive.

Gas-fitters and other men in Mr. Smith's employ were called to identify the property found, and admitted there were no marks they could swear to.

Christopher Corp, who was brought up in custody under a *habeas corpus*, in his convict dress, swore that he had been systematically robbing Mr. Smith from May until the 19th of December last. He used to sell some of the stolen property to Mr. Head, who gave him 9*s.* a dozen for 1-in. gas cocks, and 6*s.* a dozen for ¾-in.; 4*s.* a dozen for union backs, and 1*s.* a dozen for elbow nose-pieces. He did not mention Mr. Smith's name when he sold the goods, nor did he state they were stolen. Mr. Head agreed to give him 1*l.* 5*s.* for the last lot of good. He was taken into custody on Friday, the 19th of December, and on the Monday following he wrote to Mr. Head, and on Tuesday Mr. Head came and saw him in the House of Detention, and told him he had not slept all night since he had received his letter. Witness asked him if the police had been to his shop about the things, and he replied no. Head asked witness if it would not be better to send the things away, and he told him he was at liberty to please himself. Mr. Head asked who was going to defend him, and if he could give him a sovereign then and there, and he told him to leave it at his lodgings.

Mr. Ribton denounced the convict's statement as unworthy of belief, and called a number of builders' tradesmen, who gave Head an excellent character, and who stated that it was the custom of builders' tradesmen to buy job lots of goods; men went round and hawked them.

Mr. Owen, of Sun-street, Bishopsgate-street, said he had sold Head the same sort of articles as those which were found in Head's shop, and claimed by Mr. Smith. He believed Head's stock to be worth 2,000*l.* Head had purchased goods of him to the extent of 200*l.* per annum. The witness, in cross-examination, said he had been a traveller for Messrs. Fell & Co., of Wolverhampton. He left them because he had a dispute about the accounts. The firm said he had their money. He had been in partnership with Mr. Martin. His partner had given him in charge for forgery. He was discharged.

Mr. Arnold said, if it were not for the convict Corp's evidence, there would be no case at all to justify his committal of Head for trial. It was almost impossible to identify the goods, and even Mr. Smith himself would not swear positively to them, and this was much in the prisoner's favour. But he did not see why Corp's evidence should be ignored, or why he should hash up such a story against Mr. Head, more especially as he had received every kindness from him. The prisoner had admitted buying some articles from Corp, but had not produced any entry in his books to show what they were, as an ordinary business man would have done. He should, therefore, send the case before a jury, and would accept the bail.

PROPORTION AND SYMMETRY.

THOSE interested in the article in the *Builder* of March 7th, "Proportion and Symmetry," will find the subject discussed in a paper read at the Royal Institute of British Architects, by Mr. W. Cave Thomas, and also in this artist's work, "The Science of Moderation" (Messrs. Smith, Elder, & Co). "Art, Practical and Industrial," is still published, edited by Mr. Forbes Robertson (Sampson Low & Co.). There are canons of Egyptian proportion, of seated and erect figures, in the British Museum.

PERVIOUS WALLS.

SIR,—I shall be greatly obliged if any of your readers can help me by any suggestions, under the following circumstances. When a school-house was built here, twelve or fifteen years ago, most unfortunately stone was found within a quarter of a mile of the spot, and was made use of in the building. It has proved of so porous a nature (being a coarse, gritty sandstone) that, with every south-westerly gale, always accompanied here with driving rain, the wet pours in through that part of the wall which is exposed to that quarter, spoiling everything inside, and making the rooms very damp and unhealthy. Various remedies have been tried,—a silicate composition, and even anti-corrosive paint, but hitherto entirely without effect. We think of weather-tiling; but, can any of your correspondents, writing from actual experience, suggest anything else? The stonework, I should add, is hammer-dressed, the quoins only being squared.

WEST SUSSEX.

THE ROCHDALE TUB SYSTEM.

"AN Explanation of the System adopted by the Rochdale Corporation for the Removal of House Refuse and Nightsoil, and its Manufacture into Manure," prepared as a report by Mr. T. Hewson, borough surveyor, and Mr. J. Haresceugh, manager, has been issued in a printed form (Wrightley, printer and publisher, Rochdale).

In a "Summary of the Value of the Rochdale System" the reporters say:—

"The objects so far attained at Rochdale, by the new system, are:—A lower death-rate; an improved health of the people, by the town being no longer soaked with night-soil (in privies), and by the relief from the abominable exhalations arising from the decomposition of animal and vegetable matter, and the offensive system of emptying (all of which seem to have been specially arranged for spreading the maximum of disease); a power to limit the spread of infection arising from the fæces of fever and choleraic patients; a cleanly mode of removal; a reduction in the cost of erecting privies; and the saving of at least two-thirds of the cost of collection.

The tub system,—whether combined with a simple method of deodorising, or with a manufacture of manure,—is no doubt a great stride towards securing the better health of populous places; but without a system of manufacture (as at Rochdale), the difficulty which presents itself to the tub system is, that the *ashpit* nuisance remains unabated, and therefore not half the causes of ill-health removed; for it is well known that decaying vegetable matter is highly injurious to health, and that the ordinary conditions of an ashpit, or of a 'town's tip' actively

creates those diseases which so often assume the form of epidemics. Where, however, the method is adopted of converting into a marketable product the whole of the ashes and night-soil of a town, and disposing economically of the *whole* of the refuse, and so avoiding any necessity for a depot, or 'tip,' for 'rubbish' or 'dry ashes,' as they are called, not only are all nuisances prevented, but a profit obtained which, taken into account with the cost of collection, reduces the cost of the new system to far less than the old one. This last achievement, whilst not of such importance as the great sanitary improvement, has prevented that opposition from ratepayers which is always given where an expenditure on works is proposed for a new system, which cannot show that a commensurate return will be made, not only on the capital invested, but in a reduction of the rates."

A description of the system is given, with illustrations. It "includes the mode of manufacturing" the manure, as well as the mode of collection, &c., of which we have spoken on previous occasions.

The accuracy of the "Explanation," we must add, has been disputed. Our own impression of the system is anything but favourable.

A THOUGHT FROM THE PAPERS.

SIR,—I have been told by a friend of mine that the cleverest people for to-morrow must be those who know most to-day. "It's all very well for you, Wheeler," said I, "you have a library and have learnt a lot." "I haven't a book left," said he; "they were all burnt with the Pantechnicon; but the daily papers are library enough for me." Wheeler is a philosopher: he lives on porridge and wears no socks; as for his boots, so far as may be judged by the heels, they are not of much account. "I have read nothing for years but the papers, and that's why I have lost my books; at least, I thought they were safe; at most, I regret them because they were old friends, and I have paid dear rent for them too. For the sticks I care nothing; I thought they were safe though." Wheeler has been wandering about Europe for a time with the hope that he might re-establish a home by-and-by: but he won't now. For half-a-crown a week I get a splendid library—more by a deal than I can read through. What a lot of knowledge you may gain for half-a-crown a week! There is scarcely any want, real or imagined, any pain, vexation, or discomfort, that is not met with a promised satisfaction, alleviation, or positive cure, in the broad sheets of advertisements that the newspapers day after day make known to us; complaint and remedy side by side. Not to the lined-off special notifications of particular demand and supply, "Feeding-bottles for babies," "Institutes for nursing," "Education," and instructional amusements, good and bad, "Clothing" for ladies and gentlemen, and what to do with it when they have done with it, "Cautions," "Notices," "Soaps for coarse complexions," and any dye you may wish or hope your hair to be—all the long run of what in a life-time dressing and acting may help to the last of it; and for the last of them I shall cite "Memorial Brasses" for the dead,—is the denomination of advertisement to be restricted.

From its first capital letter to the date when so and so of somewhere published it, a newspaper is advertisement from beginning to end. And not in "the agony column of the *Times*" are its most startling and mysterious announcements to be found, for last Tuesday a short paragraph stopped my breadth, and yet I am not a very nervous man. Read this, sir:—

"Petroleum.—The increase in the importation of petroleum is remarkable, as appears by the return issued on Saturday. In the last month the declared value was 143,911*l.* against 33,515*l.* in the same period last year. In the last two months, the value was 264,855*l.*; in the same period last year, 59,353*l.*"

A poor wretched creature with toothache or earache would be asked fifty questions if his or her clothes were ragged before obtaining a pennyworth of laudanum to soothe anguish. A well-dressed scoundrel with three thanks, could buy with as many pennies as smiles, enough of that which was to clean his gloves, or burn the Bank down. A fellow *must* smile to get along. Be grave and serious—unless a Chancery attorney, or engaged in a divorce case—and you are lost.

My library brings me many pleasures. I delight in reading of such charming record it gives of the Royal family's new happiness; our loyalty; our real love for the Queen, our princes and our princesses, and therefore our happiness too. I see so much to thank God for; but whilst thanking, I would beseech God to save us more knowledge of petroleum. It is a horrible thought that no right, no honest impulse, adds to its importation. It absorbs me now; for the thought of "how in a quarter-turn of the clock's hands the busy hands' work of grey-headed men may be brought to nought by a little more heat than may keep it dry; that the hoarded treasures of home that have descended from father to son, shall be but cinders in a few hours; that accident, spite, or desperation, should have such a weapon," makes me regret, almost, that Jack Wheeler should have told me of a cheap library.

ADAM WAKE.

BUILDERS' CLERKS' BENEVOLENT INSTITUTION.

THE seventh annual meeting of this Institution was held at the Office, 27, Farringdon-street, on Tuesday, the 3rd inst., Mr. Charles Fish, president, in the chair.

The balance-sheet showed an income from all sources, during the past year, of 284*l.* 9*s.* 4*d.*, being 30*l.* 19*s.* 8*d.* less than the previous year, owing to a falling off in the donations principally to the Orphan Fund. 115*l.* had been paid in pensions to widows, and 61*l.* 8*s.* 2*d.* in expenses of management. 116*l.* 2*s.* had been added to the investments, and it was stated that 91*l.* 17*s.* 6*d.* had been invested since the end of the year; the total invested funds being 1,138*l.* 12*s.*, representing 1,225*l.* New Three per Cents.

The president, in moving the adoption of the report and balance-sheet, said they showed that the Institution had made considerable progress during the seven years it had been established; but the builders' clerks of the metropolis were a large and important body of men, and he should have expected that much more would have been done in the time. The only point in the report which seemed to him to call for special remark was the amount of working expenses, which was large in proportion to the relief granted, but small in itself, and he did not think it could be further reduced without decreasing the efficiency of the Institution.

Mr. Thomas Robinson (Messrs. Cubitt & Co.), vice-president, made some observations on the desirability of collecting all subscriptions and paying all expenses which occurred during the year in which they accrued.

The meeting was then made special, and the election of Mrs. Spencer to a full widow's pension decided by a show of hands, there being no competitor.

Mr. H. T. Bayes brought forward the motion which had been advertised, that the Orphan Fund should at once be put into operation, urging the meeting not to bind themselves to the amount of 1,000*l.*, which had been fixed by the preliminary committee before experience had shown the best mode of working, or the amount necessary to make a beginning.

Mr. E. Brooks warmly seconded the proposition.

A letter was read from Mr. Arthur Cates, one of the trustees, expressing his cordial approval of the motion, and inclosing a donation of 5*l.* 5*s.* towards the Orphan Fund.

Mr. G. Prestige (treasurer) wished the meeting to clearly understand that this was not a motion brought forward by the committee collectively, or that met with their entire approval. The fund would probably accumulate to the limited amount in three or four years, and he deprecated any interference with the established rules of the Institution.

Mr. T. Peto Ward (founder of the Institution) was fully as anxious as any of the committee to extend the benefits of the Institution as far as as practicable, but he felt that he must oppose such a motion being brought forward at this time. The rule, that when the fund had accumulated to 1,000*l.* a meeting should be called to consider the subject, had not been made without due consideration, and he thought it should be adhered to.

Mr. T. Robinson supported the motion, saying it seemed a pity to adhere too rigidly to the sum of 1,000*l.*, as there was no especial charm in that amount if the fund could be usefully employed sooner.

Eventually the motion was carried by 12 to 3, and the committee instructed to prepare a scheme for consideration at a future meeting.

A proposal to reduce the amount of subscription payable by junior clerks, to enable them to obtain a vote, was negatived by the casting vote of the chairman, and the meeting terminated with the usual votes of thanks.

TRADES MOVEMENT.

Birmingham.—A general meeting of the master-builders was held at Birmingham on Thursday, 5th inst., to consider the demands of the labourers, stonemasons, and plasterers, who have given notice to strike in April unless their demands are conceded. The labourers, who now receive 4½*d.* per hour, claim 5½*d.* The employers offered 5*d.*, subject to arbitration. The labourers having refused arbitration, it was resolved unanimously by the employers to make no further offer. It was the opinion of several masters that a strike would follow. The stonemasons had asked for another farthing per hour, which would make their wages 8*d.* per hour. The employers offered to give the extra farthing, but a disagreement had arisen about a rule binding on the stonemasons in regard to the right and power of the masters to conduct their own business without being interfered with by their men. The plasterers claimed another farthing per hour, but agreed to arbitration. The masters supported their committee by adopting their report.

Edinburgh.—An aggregate meeting of joiners has been held in St. Mary's Hall, Mr. Thom in the chair. From the statements given in by the various shops and squads, it appeared that the whole of the masters had acceded to the demands of the men. It was, however, alleged that a number of workmen had been dismissed in consequence of the active part taken by them in the movement for obtaining the advance. After an animated discussion, it was unanimously agreed to support any who had suffered in this manner until they should obtain employment at the advanced rate.

Limerick.—All the house-carpenters in Limerick have struck work, owing to a refusal on the part of the employers to raise their wages from 30*s.* to 33*s.* per week. Some time since the men gave notice that on and after the 1st instant 33*s.* per week would be demanded. In consequence of the strike several employers who had large contracts in hand have been obliged to stop work.

ACCIDENTS.

Birmingham.—A house in Lower Temple-street, known as "Welch's Pie Shop," in addition to being exceedingly old, was lately rendered still more insecure by the taking down of some adjoining building, and also in consequence of it being undermined in the construction of new cellaring, and great fears were entertained of its falling at no distant date. Some workmen employed near the shop observed the house suddenly commence to sway to and fro, and immediately acquainted the inmates of the house, who at once went out into the street, and in a few minutes the whole structure fell. Half an hour later the dining-room would have been full of people.

Brighton.—A large portion of the heavy cornice on the front of the Old Ship Hotel fell last Monday, with a heavy crash on to the pavement, near the principal entrance to the hotel. Fortunately the damage done was confined to the breaking of three iron railings and a few squares of glass.

Workington.—During a storm several concrete houses, which are being built near the Derwent Tin-plate Works, at Workington, were blown down by the wind.

Sheffield.—A serious explosion has occurred at the works of Messrs. Foster & Lockwood, known as the Britannia Foundry, Carlton-road, Attercliffe. The works have only just been erected. A portion of them consisted of a shop of 100 ft. long, by 50 ft. wide, and in it were three 10-ton cranes and an air furnace. About 3 tons of molten metal were drawn from the furnace into a pan, and one of the cranes was brought into use to send the pan over what is known as a roll-pit," where the moulds are to be placed. As the crane was swinging round the chain broke, and the pan and metal toppled over into the pit. Unfortunately, not only was the pit extremely damp, but at the bottom of it there was some water. The instant the molten metal touched the water it exploded with three loud reports, and the metal was carried in one great mass right up through the roof, which was blown completely away, and the tiles and slates were scattered in all directions. There were fifteen men in the shop, all of whom are more or less seriously injured from the falling roof. One of them had a piece of slate driven into his skull. The concussion caused by the explosion smashed almost every window on the opposite side of the road, and it is said the clerks in the offices attached to the works were thrown from their seats. Windows were broken within a radius of a quarter of a mile on either side of the works.

Nothing Like Iron.—The Darlington Iron Company have just declared a dividend of 2*l.* 10*s.* per share for the past half year. The nominal value of the shares is 20*l.*, but only 8*l.* are paid up; hence the per-centage paid is somewhat startlingly large. In spite of dull times, high prices of fuel, and strikes, it is clear iron-makers make enormous profits, and the increasing rage for iron constructional works is opening up a wide field for ironmasters to grow rich.

SCHOOL BUILDING NEWS.

Burton-on-Trent.—A new grammar-school and residence for the head-master are about to be erected. After a limited competition, the designs of Mr. G. Scamell, of Great George-street, Westminster, have been selected, and having been approved by the Endowed Schools Commissioners, the works will be proceeded with immediately the working drawings are prepared. The school, which is to provide accommodation for 120 scholars, consists of a general room, 65 ft. by 25 ft., and three class-rooms, each 20 ft. by 20ft., and opening direct from the school-room, two of which are placed at the end of the school-room, forming a T on plan, and separated from each other by a sliding partition. At the other end is placed the drawing-class-room, and also the teacher's room, lavatory, hat and cloak room, and entrance-porch. Open fireplaces are provided, and ventilating-flues in the roof. Externally the buildings will be of a plain Gothic character, built of the local red brick, with Ancaster stone dressings, with a few moulded bricks introduced as labels, strings, &c. The roof of the main building will be surmounted with an open flèche utilised as a ventilator. The master's residence will be of the same character as the school, and quite detached from it.

Laisterdyke. — The new Sunday and Day Schools in connexion with St. Mary's Church, Laisterdyke, have been opened, according to a Bradford paper. The foundation-stone of the schools was laid by Mr. F. S. Powell, at the close of 1872, and the total cost has been about 1,400*l*. The site adjoins the parsonage. The new building consists of one large room for boys and girls, and two class-rooms, and will accommodate 220 children. Messrs. T. H. & F. Healey, of Bradford, are the architects; and the masonry and woodwork have been carried out by Mr. B. Roberts and Mr. G. C. Gamble.

Tarrant Gunville.—The new school in this parish has been at length formally opened. The school, which is of an ornamental character, has been built of brick and flint, with stone turret and porches, by Mr. A. H. Green, of Blandford, and stands in one quarter of an acre of ground, surrounded by a brick wall. It contains accommodation for ninety children. It stands above the adjoining cottages, immediately fronting the church, on the opposite side of the Tarrant valley.

Miscellanea.

The Reredos in Worcester Cathedral.—The new reredos, gift of the very Rev. Dean Peel, has latterly received some additions in the shape of grille work, intended to add to its lightness, and is now receiving the finishing touches of the decorative artist. The cost of the original structure, we understand, is about 2,000*l*., but the subsequent additions and decorations will add considerably to that amount. The base extending from the floor upwards for some 4 ft. or 5 ft. is of alabaster, in diaper work, interspersed with round knobs of Derbyshire spar, beautifully varied in colour. This base supports a series of five central niches canopied, finialled, and crested, and three smaller niches on each side of the central niches. The diapers in the base are now being coloured and gilt. The clustered shafts dividing the niches are of different kinds of marble and of granite. The five principal niches in the centre are more profusely carved and ornamented than those at the sides. Five full-length figures, of nearly life-size, are placed in these niches. The principal and central figure is that of our Lord in the act of benediction, the four Evangelists—Matthew, Mark, Luke, and John—being ranged two on either side. The five principal figures appear too large for their situation. The finial of the canopy over the central figure is enriched by four large coloured stones.

The New Esplanade at Ventnor, Isle of Wight.—In the local Board, it has been resolved,—"That the Permanent Improvement Commissioners be instructed to examine the plans of the esplanade already prepared, and advise the Board as to the propriety of buying any of them." Some members thought the plans referred to were not of much practical use, having been made some years ago. Mr. Saunders replied to objections, and an assurance being given that the Board would be committed to no expense, the committee were empowered to bring up any other plans they might think advisable.

Oxford Architectural and Historical Society. — The second walk this Term took place on Saturday before last, when the members and their friends assembled at the Ashmolean Museum, where, in the absence of Mr. J. H. Parker, the keeper, they were received by Mr. J. P. Earwaker, the deputy-keeper. After a few introductory words from Professor Westwood, Mr. Earwaker gave a brief description of the museum and its contents. Mr. W. S. W. Vaux, of Balliol College, then gave an account of the Arundel marbles which are now placed in the basement of the building. The next walk will be to Marston and Headington, where the churches at those places will be visited. The second evening meeting was held in the Taylor Building, the Rev. J. S. Treacher in the chair. Two new members were proposed, and twenty-four proposed at the previous meeting were unanimously elected. Mr. A. J. Evans, of Brasenose College, then read a paper on "The Bronze Age in Europe," and illustrated it with a collection of specimens from Austria, Germany, France, Italy, Denmark, Cyprus, Styria, and other places. Mr. James Parker, Mr. Earwaker, and Mr. Daniel took part in a discussion which followed. Mr. Parker had intended making some remarks "On Flint Weapons," but in consequence of the lateness of the hour they were postponed.

The Coal Question and the Statistical Society.—The debate on Sir Rowland Hill's paper, proposing a tax on coal, at the Statistical Society, appears to have been much more interesting and instructive, says the *Economist*, than the paper itself. Thus Sir James Anderson remarked that "if the price of coal were fixed at 30s., 35s., or 40s., there would be no difficulty in supplying the railways, gasworks, and iron-works of England with all the coal they require from the United States and Nova Scotia. So long as England possessed the brain to use the coal advantageously in her manufactures, she would be able to obtain it at a price which would enable her to compete with other nations. He did not believe that our operatives would leave the country, no matter what became of our home supply of coal." As the opinion of a practical man of the highest authority, this assertion that the commercial supremacy of England is not dependent on cheap coal is of some value. We also find another expression of opinion by a very able man, which seems to show the extreme danger of expressing opinions on business subjects with which the speaker has no practical acquaintance.

Manchester Academy Exhibition.—The collection is an interesting one, if not of very elevated character. Local art comes out fairly. The local *Evening News* regrets the absence of works by lady artists:—"All around," says the writer, "we saw pictures of masculine strength and vigour, and others of feminine lightness and grace; but, for all that, there was nothing which bore witness to the artistic talents of the gentler sex in the whole exhibition. This we cannot help thinking, however it may have been caused, was a great pity. Manchester has a number of lady artists, and some among them are reported to be possessed of no mean ability. We dare hardly say they are 'gems of purest ray serene,' but they certainly waste much of their sweetness on a desert air, because they have not the opportunity of bringing their works under the notice of the appreciative public which attends the Academy twice a year. One of the 'rights' of woman which we have always been ready to recognise is her right to enter, upon an equality with man, into all the professions for which she is fitted."

Manufacture of Patent Fuel.—On the invitation of the Duke of Sutherland, Lord John Hay, and others, a number of gentlemen have assembled at Seafield, near Bathgate, for the purpose of witnessing the opening of works there for the manufacture of patent fuel. The fuel consists of certain proportions of coal-dross mixed with a percentage of shale-tar, and the advantages claimed for it are, that while each of the substances is individually of small account, the two combined yield a product of great commercial value. The patent fuel was tested in various ways, and it was acknowledged on all hands that it excelled for steam-producing purposes the best coal. The patent also applies to the preparation of iron-dust ore for the smelting furnace. It is intended to collect the dust ore, and by means of a flux composed of shale-tar and lime, form it into blocks, which may be thrown into a blast furnace.

Condition of Balconies and other Standing Places.—At last week's meeting of the Metropolitan Board of Works it was resolved that a circular letter be addressed to the district surveyors, in the route of the royal procession of her Majesty and the Duke and Duchess of Edinburgh from Paddington to Buckingham Palace, calling their attention to the necessity of carefully inspecting all balconies, parapets, and temporary erections in their districts, on the 12th inst., with a view to proper measures being taken for the safety of the public. Mr. Fowler regretted that no fee could be allowed to the district surveyors for this service. Major-General Sir W. Codrington, however, said he was very glad to hear that no fee was to be charged, as he thought it would be very hard if a fee were charged upon every house in the line of the procession. The first case in point was that of the proprietor of a balcony at Charing Cross, who was ordered by Mr. Vaughan to secure his balcony in a few hours, else it would be done at his expense.

Roman Antiquities.—The *Italie* of Rome publishes the following:—"A number of archæological discoveries have been lately made here in the different quarters where building is going on. Among them may be mentioned a complete statue of Juno; one of Æsculapius with the feet broken off; three figures without heads or extremities; six of Venus of different forms, and some of which are also without heads. There is also a colossal statue of a woman, in fragments, of which forty pieces have been collected. At the point of intersection of the streets Cavour and Principe Umberto four other figures without heads have been found, making in all sixteen in a few days. Near the gate of San Lorenzo have also been brought to light the remains of a forum, surrounded with colonnades. In the Piazza Victor Emmanuel the workmen have come upon the vestiges of a vast semicycle of more than 260 ft. in diameter.

Dwellings for the Labouring Classes.—At the last meeting of the Metropolitan Board of Works, the Works Committee brought up a report, recommending that with reference to the memorial presented to the Board by a deputation appointed at a public meeting, on the subject of the erection of dwellings for the labouring classes a communication be addressed to the memortalists in reply, to the effect that the Board had always evinced a desire to make provision for the accommodation of the labouring classes whose dwellings have been required for street improvements, and that certain plots of ground in the intended new street from Oxford-street to Shoreditch would be reserved for such purpose; but that the Board had no power to carry out such a plan as that suggested by the memorialists.

Improvement of St. Pancras Vestry-hall.—The vestry of St. Pancras a short time ago instructed their General Purposes Committee to obtain plans for the improvement of the appearance, and for the enlargement of the Vestry-hall, at the junction of St. Pancras and King's roads, which was to be effected by utilising the ground in front and at the side of the hall, in order to provide additional office room to accommodate the offices of the Works and Sanitary Departments, and the cost not to exceed 3,000*l*. The committee thereupon offered a premium of 20*l*. to the architect who sent in the best plan, and the plans received were exhibited in the vestry-hall for the inspection of the vestrymen.

London International Exhibition, 1874. The Committee for Sanitary Apparatus and Constructions held their seventh meeting on Tuesday at the Royal Albert Hall. Mr. George Godwin in the chair. There were also present—Mr. Gatliff, Dr. Hardwick, and Dr. George Ross. The goods received were inspected, and the committee adjourned until the 24th inst.—The eighth meeting of the Committee for Building Contrivances and Materials was held on Wednesday. Mr. H. Grissell in the chair. There were also present — Messrs. Bird, Elger, Kirkaldy, and Wyatt. After inspecting the goods received, the committee adjourned until the 25th inst. Captain Clayton, R.E., attended both committees.

Royal Academy.—Professor Edward Barry has been appointed treasurer in the place of Mr. Sidney Smirke, resigned. This is one of the appointments in the Academy which rests with H.M. the Queen.

Marseilles Exhibition of Inventions and Discoveries.—An International Exhibition of new inventions and discoveries in manufactures and machinery, the sciences and art, will be held at the Château-des-Fleurs, Rond-Point du Prado, Marseilles, from the 15th of May to the 31st of December, proximo. Ten grand prizes and 600 gold, silver, and bronze medals will be awarded by a jury. Applications for space and particulars are to be addressed to M. Tolhausen, 36, Farringdon-street, E.C., sole agent for the United Kingdom. At the close of the Marseilles exhibition the articles not sold may, if desired, be sent direct to the Paris International Exhibition of 1875.

An Infirmary for Bury.—On Monday, at the annual meeting of the subscribers to the Bury dispensary, a set of plans for a proposed infirmary was produced and accepted. Some time ago the late Mr. Norris left a legacy to the dispensary of 4,000*l.*, and the committee decided to establish an infirmary. A site has been given by Earl Derby, in Walmersley-road, a very suitable place on the north-western side of the town. The cost of carrying out the plans would be 9,660*l.*, but it was decided to omit the ward at each end for the present, hence the proposed building will cost only 6,800*l.* A committee was appointed to carry out the work.

Free Library at Derby.—More than a year ago Mr. Bass, the member for the borough, who had been a most liberal contributor of books, offered to give 4,000*l.* or 5,000*l.* for the erection of a free library if the town would find a site. Last week the town council unanimously adopted the report of a special committee, which recommended that a piece of land near the post-office be applied to the purpose, and that by an exchange with the Mechanics' Institution the widening of a narrow street called Wardwick shall be carried out as part of the project. The total cost of the site and widening the street will probably exceed 8,000*l.*

Yorkshire Architectural Society.—Last week the annual meeting of the members of this society was held at York, Mr. J. B. Atkinson in the chair. The Rev. George Rowe, one of the honorary secretaries, read the report, which stated that many losses had been sustained by the decease and withdrawal of members; notwithstanding, the finances showed a good balance in hand. It was decided that the annual summer excursion of the members of the society should take place early in June next, and that the district visited shall be Pickering, Lastingham, and Kirby Moorside.

The Saloon-balancing Channel Steamer. A general meeting of the Bessemer Saloon Steamboat Company, Limited, has been held, Mr. John M. Dunlop in the chair. Explanations were given by Mr. E. J. Reed, M.P., and by Mr. Bessemer, as to the progress of the first ship and engines, which were considered quite satisfactory. It was stated that in working out the details of the invention, expectations had been greatly strengthened, and that success was absolutely certain. The ship will be launched with engines and saloon on board all complete, and be ready for active service in the early summer.

Royal Italian Opera, Covent Garden.—Mr. Gye has announced the commencement of the opera season on Tuesday, March 31st, and gives a remarkable list of lady artists, including Madame Adelina Patti, Mademoiselle Marimon, Madame Vilda, Madame Pauline Lucca (probably), and Mademoiselle Emma Albani. Amongst the male artists, with several new names for first appearances, are Signors Graziani, Cotogni, Bagagiolo, Ciampi, Capponi, Tagliafico, Maurel, and Faure. Three operas new to London are promised. There can be little doubt of a brilliant season.

The Public Libraries Act in Newcastle-upon-Tyne.—At a public meeting of ratepayers in the Town-hall it has been resolved by a large majority to adopt the Public Libraries Acts. There is a quasi public library, Tomlinson's, in the town, but like many other libraries of this description it seems, from Dr. Bruce's account of it, to be nearly useless.

"Patent Law."—A paper will be read on Monday evening next, the 16th inst., at a meeting of the Law Amendment Society, to be held at their rooms in Adam-street, Adelphi, by Mr. John Coryton, "On the Policy of granting Letters Patent for Inventions, with Observations on the Working of the English Law."

Steam Cultivation on the Contract System.—Mr. Arthur Carey, of the steam-ploughing and engineering works at Rochford, says, in the *Essex Herald*:—"It may interest the readers of your 'Agricultural Notes' to hear that 7,576 acres have been steam cultivated by engines from these works during the year 1873. Add to this about 2,500 acres done by tackles supplied from here to Messrs. R. C. Davis, Circuit, Sturgeon, and others, it will show a total of more than 10,000 acres steam cultivated in the south of Essex alone in one year."

Restriction of the Water Supply in Leeds.—The waterworks committee having reason to believe that at least one-third of the water supplied to the town is wasted, and that such waste occurs in the night-time, to assure themselves as to this the water was shut off in several districts during the night, and the result having been ascertained, it was resolved to resume the constant supply over the whole town. The committee have no doubt but a great saving would be effected if the supply were made intermittent instead of constant.

Public Landing Stairs at Chelsea.—The Works Committee brought up a report at the last week's meeting of the Metropolitan Board of Works submitting detailed drawings, prepared by the engineer, for the three public landing-stairs to be erected at the Chelsea Embankment, and a tender by Mr. W. Webster, the contractor for the Embankment works, for the erection of such landing-stairs, for the sum of 845*l.*, and recommending that the offer be accepted. On the motion of Mr. Newton, the recommendation was agreed to.

Another Theatre for Liverpool.—An addition has been made to the number of Liverpool theatres in the form of the Wellington Hall, Camden-street. On application for the licence, it was stated that the hall in future would be known as the Gaiety Theatre, and that it would be almost entirely devoted to the production of opera and opera bouffe. It would afford accommodation for 523 persons; and Inspector Gardner, who had visited the building, reported that it was satisfactory. The licence was unanimously granted.

The Opening of National Museums on Sunday.—A conference of delegates from various working men's organisations, convened, in the first instance, by the National Sunday League, has been held at the rooms of the Social Science Association, Adam-street, Adelphi, to obtain all possible support for Mr. P. A. Taylor's motion in favour of opening museums on Sundays, and to consider the best means of making the opinions of the working classes on this subject respected by Parliament.

New Market for Harrogate.—The foundation of a market-hall has been laid by Mr. John Barber, chairman, of the Improvement Committee, in the presence of a very large assembly. The market will have a lofty clock tower. It is situate close to the North-Eastern Railway station, and will have two frontages—one to the station, and the other to Cambridge-street. Mr. Arthur Hiscoe, of Harrogate, is architect, and the cost (besides the purchase of the site) will be about 4,000*l.*

The Borough Surveyor, Margate.—At the last meeting of the Town Council, on the motion of Mr. Alderman Pickering, it was resolved unanimously:—"That the Council desire to express their great satisfaction at the efficient and courteous manner in which Mr. Coghlan has carried out the duties of the office of surveyor of the borough during the period he has occupied that position, and they desire to congratulate him on his new appointment."

The Drainage of Brentford.—At a recent meeting of the Brentford sanitary authority, a communication from the Local Government Board, in reply to an application for advice in regard to the sewage of the town, was read. The Board advises the preparation of a drainage scheme by a competent engineer, and expresses its readiness to consider an application for borrowing power to carry out the scheme.

The Wilberforce Memorial.—The subscriptions to the Oxford Diocesan Wilberforce Memorial have now reached the sum of 4,000*l.*, and the building of a chapel to Cuddesdon College, and the erecting of a throne in Christ Church Cathedral are at once to be proceeded with.

Welshpool Borough Surveyor.—Complaints are made that a candidate who is a plumber, painter, and glazier, has been appointed borough surveyor for Welshpool. One peculiarly innocent correspondent inquires of us whether the properly educated surveyors, who spent money in replying to the advertisement, sending drawings, &c., could not recover compensation for their loss!

Leicester-square.—The workmen are in full swing here, and making good progress. A correspondent, likely to be well informed, says that Mr. Albert Grant proposes to supply a long-felt want in the Metropolis, by dedicating the centre of the square to a monument to Shakspeare. Mr. Tom Taylor is engaged upon a book, descriptive of the locality and its notabilities.

West Ham School.—We have received a letter of complaint as to the connexion of the architect with the surveyor appointed to take out the quantities for tenderers in this matter, but do not find sufficient in the letter itself to justify the strong remarks made.

Hythe Church, Kent.—It is stated that steps will be taken, during the present summer, to raise funds to improve and repair the interior of the parish church of Hythe, in Kent, one of the finest churches in England.

TENDERS

For The Cedars, West Kensington, for Mr. J. R. L. Stagland. Mr. F. Rogers, architect. Quantities by Mr. S. Fowler:—

Auriol-road, four houses.

	If Faced with White Suffolks.	Picked Stocks.
Adams	£4,202 0 0	£4,088 0 0
Sawyer	3,540 0 0	3,465 0 0
Reid	3,350 0 0	3,300 0 0
Butland	3,306 0 0	3,241 0 0
Taylor	3,083 0 0	—
Chamberlin	3,295 0 0	3,097 0 0
Thomas	3,000 0 0	2,900 0 0

Edith-road, one house.

	If Faced with White Suffolks.	Picked Stocks.
Adams	£1,639 0 0	£1,623 0 0
Sawyer	1,453 0 0	1,428 0 0
Reid	1,420 0 0	1,397 0 0
Taylor	1,393 0 0	—
Butland	1,350 0 0	1,330 0 0
Chamberlin	1,345 0 0	1,289 0 0
Thomas	1,200 0 0	1,165 0 0

For the erection of a pair of semi-detached villas at Clackton-on-Sea, Essex, for Mrs. Palmer, Stockwell, London. Mr. G. Gard Pye, architect:—

Riches	£1,420 0 0
Shepherd	1,345 0 0
Davey	1,240 0 0
Clarke & Son	1,060 0 0
Hearne	896 18 0

For docks at Millwall, for the Northumberland Graving Docks and Engineering Company, Limited. Mr. E. C. Horner, engineer:—

W. & J. Pickering	£44,599 0 0
Neave & Sons	36,252 0 0
Kirk & Co.	33,873 0 0
Crochett & Dickinson	31,000 0 0
Dixon	27,000 0 0
Wicks	26,235 0 0
Watts	25,971 0 0
Sheffield	24,674 0 0

For new offices, &c., for Messrs. Black, Hawthorn, & Co., engineers, Gateshead. Mr. J. E. Watson, architect:—

Mitcheson	£2,240 0 0
Kyle	2,118 10 4
Harrison	2,060 10 5
Simpson (accepted)	1,996 0 0

For completing a villa residence at Torrington Park, for Mr. Rickets. Messrs. J. & F. Clarkson, architects:—

Ware	£1,250 0 0
Boff	1,220 0 0
Adams	1,055 0 0
Savage	1,038 0 0
Bowden	796 0 0
Pearce	788 0 0
Warr	749 0 0
Prior, Brothers	670 0 0
Ridsdale	650 0 0
Seed	648 0 0
Soul	647 0 0
Walton	600 0 0

For alterations and additions at Warwick-road, Maida-hill. Mr. H. H. Collins, architect:—

Vernall	£933 16 0
Poole	752 0 0
Ebbs & Son	715 0 0
Bird	650 0 0

For decorative works at Tottenham-court-road and Euston-road, for Messrs. E. Moses & Son. Mr. H. H. Collins, architect:—

Forley	£635 0 0
Poole	627 0 0
Perry, Bros.	500 0 0
Newman & Mann	497 0 0
Vernall	456 0 0
Colls	449 0 0

For photographic studio and various works at Bruton-street, Bond-street. Mr H. H. Collins, architect:—

Carter	£886 0 0
Vernall	826 0 0
Poole	662 0 0

For decorative and other works at the premises known as Kahn's Museum, for Mr. S. Gilbert. Mr. H. H. Collins, architect:—

Vernall	£705 0 0
Poole	676 0 0

For pulling down and rebuilding the Leigh Hoy, Church-street, Mile-end New-town, for Mr. Claus. Mr. W. Dobson, architect:—

Markall	£2,023 0 0
Hunt	1,864 0 0
Perry & Co.	1,830 0 0
Harding	1,811 0 0
Judd & Hawkings	1,800 0 0
Peters	1,798 0 0
Ennor	1,794 0 0
Wood	1,763 0 0
Stamp & Bowtle	1,725 0 0

For a house at Sheen, for Mr. Hamilton. Messrs. Manning & Beachcroft, architects. Quantities by Mr. D. J. Brown:—

		Add for Facing.
Kimberley	£3,216 0 0	£30 0 0
Browne & Robinson	2,926 0 0	98 0 0
Clark & Bracy	2,878 0 0	88 0 0
Smith	2,850 0 0	30 0 0
Temple & Foster	2,748 0 0	60 0 0
Mann	2,730 0 0	40 0 0
Nye	2,720 0 0	40 0 0
Adamson & Son	2,697 0 0	40 0 0
Longmire & Burge	2,680 0 0	80 0 0
Manley & Rogers	2,650 0 0	55 0 0
Aviss & Co.	2,592 0 0	80 0 0

For alterations to the Blackstock Tavern, Finsbury Park, for Mr. W. Wells. Mr. J. Viney, architect:—

Stead	£239 0 0
Brooks	239 0 0
Channing	222 0 0
Parsons (accepted)	215 0 0
Pewterer's Work, &c.	
Heath (accepted)	139 0 0

For alterations to the Constitution Tavern, Drury-lane, for Mr. George Young. Mr. J. Viney, architect:—

Godden (accepted)	£089 0 0

For repairs to four houses, Hanley-road West, Hornsey-road, for Mr. Charles Palmer. Mr. J. Viney, architect:—

Edworthy (accepted)	£290 0 0

For restoring No. 230, Fulham-road (damaged by fire), for Mr. Foy. Mr. W. H. Lamborn, architect:—

Dredge	£230 0 0
G. Godbolt	225 0 0
Bunting	205 0 0
Norris	198 0 0
N. Godbolt	198 0 0
Hall	195 0 0
Sanders	180 0 0
Battley (accepted)	164 0 0

For coal-vaults at St. Luke's Workhouse, City-road, for the guardians of the Holborn Union. Mr. H. Saxon Snell, architect:—

Stamp & Bowtle	£397 0 0
Wagner	360 0 0
Boyce	347 0 0
Staines & Son	336 0 0
Deacon	324 0 0
Wall, Bros. (accepted)	296 0 0

For new chancel, vestry, and fittings at St. Margaret's Church, Brighton. Mr. John O. Scott, architect:—

Lockyer	£4,900 0 0
Booth	4,830 0 0
Chappell	4,828 0 0
Lynn & Son	4,744 0 0
Patching & Webber	4,685 0 0
Dove, Bros.	4,655 0 0
Cheesman & Co.	4,646 0 0
Eldridge	4 604 0 0
Smith	4,566 0 0
Nash & Co.	4,479 0 0
Carruther	4,446 7 6

For alterations to the John Bull, Bath-street, Poplar, for Mr. Anglias. Mr. E. Brown, architect:—

Davis	£261 0 0
Lunn (accepted)	245 0 0
Marr	227 0 0
Lamacroft	225 0 0

For warehouse at 126, Queen Victoria-street, for Mr. G. H. Smith. Mr. J. Wimble, architect:—

Bland & Son	£2,801 11 2
Shepherd	2,650 0 0
Falkner	2,556 0 0
Scrivener & White	2,522 0 0
Hoare & Son	2,404 0 0
Kilby	2,400 0 0
W. & F. Croaker (accepted)	2,398 0 0

For alterations and repairs to 110, Pitfield-street, Hoxton, for Mr. T. Arno. Mr. E. Brown, architect:—

Beale	£292 0 0
Higgs (accepted)	277 17 0
Marr	248 10 0

For proposed lodge, chapter, banquet, reading, billiard, and assembly rooms, offices, and cellarage, at the Surrey Masonic Hall, Camberwell New-road. Messrs. Pain & Clark, architects:—

Oliver (accepted)	£4,882 0 0

For alterations to the Stanley Arms, Kirkdale, Liverpool. Messrs. Murray & Thomas, architects:—
Contract No. 1.

Thompson & Cook (accepted)	£427 16 0

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